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[Prepared for the JOURNAL.]

Concealed Lighting.

[By MR. THOMAS MORGAN, Atlantic Chambers, Manchester, England.]

There is every probability of a great change in the art of illumination, both in public and domestic buildings, which will be equally applicable to the United States and Europe. The system of "*concealed lighti g*," is slowly but surely being introduced, and it is probably only a question of time for it to become generally known and to supercede the present systems, which were themselves an improvement on those which preceded them. At the present time all those interested in lighting will welcome any new factor which will reduce the cost of artificial illumination. It will be generally conceded, however, that enough has already been done in this direction for a decided step now to be taken towards an improved system of lighting. Lighting authorities are now generally agreed that all sources of light should be placed in such positions, or behind such guards, that at no point in a room should the eye be able to meet with a dazzling center of light or surface. Theoretical perfection is obtained when at no point is the intensity of the illumination in excess of the average illumination by more than a fractional amount previously determined by experiment to be unobjectionable.

The nearest approach to concealed lighting which has so far been attempted to a considerable extent, is the system adopted in many private houses of having several rooms lighted by a number of carefully shaded, low power lamps, which diffuse light whilst the source is practically not noticed. This system is limited to one section of the community as it is too costly for general application. The direction in which a successful advance appears at the present time most likely to be made, is in the introduction of a so-called "cornice system," in which unshaded lamps are concealed behind a hollowed cornice so that the light can be reflected downwards from a white covered ceiling. Examples of this system are now becoming increasingly common, on both sides of the Atlantic. It will be adopted in several large public buildings now being erected in London. The defective illumination of many large assembly rooms is notorious, and many have found their eyes wearied after sitting through an ordinary meeting. With a suitable system of illumination such fatigue should not occur, and with concealed lighting it would be quite impossible.

It scarcely seems rash to prophesy that before the lapse of many years, any scheme of illumination will appear to be out of date, which is not in accordance with the system of "concealed lighting;" that is, of keeping out of view the real sources of light and, that the method now nearly universal will be generally considered both injurious to the eyesight, inartistic and oldfashioned; tolerably as we consider oil lamps lighting. The introduction of incandescent gas lamps has resulted in an undoubted reduction in the cost of gas lighting, as a smaller quantity of gas will yield the same candle power as hitherto. It has had, moreover, the notable effect of considerably increasing the brilliancy of illumination; this has been carried to such an extent that it is probable the present intensity of lighting may be extremely injurious to the eyesight.

Artificial lighting is a development of our present civilization; not many centuries ago practically all work was done during the daytime and, to obtain the maximum work, generally commenced at, or soon after, sunrise and was not continued after dark. That is abundantly clear from old records and sayings; in these times artificial light was both expensive, and to our ideas, extremely defective and trying to the eyes. Anyone who has attempted to work in a room lighted only by one of the ancient brass lamps, which may still be found in some of the older European towns, will realize the impossibility of reading or writing with any comfort for any length of time. Ability to work with artificial light, first became a practical possibility with the introduction of gas lighting early last century, with the concurrent rise in the standard of material welfare. Even when it became available, the cost of lighting was a consideration, and great efforts were made to bring the light from the gas flame as directly as possible upon the material being worked, even in cases which necessitated the light shining straight into one's eyes.

It cannot be too strongly emphasized that it is a mistake to suppose the interior lighting of either public or private rooms requires to be of great power, According to measurements recently made with a Trotter photometer the illumination of some European libraries and reading rooms, the lighting of which is considerod ample, ranges from 0.01 to 0.007 of daylight illumination. In the British House of Parliament, the illumination, which no one considers anything but sufficient, it is 0.006, in the House of Lords and 0.008 in the House of Commons. An expert has suggested that, if it is possible to work

satisfactorily in the House of Commons with an amount of illumination equal to only one twelve-hundredth of that in the daylight outside, it must be evident that, so long as the illumination is fairly uniform and not patchy, the eye is marvellously adaptable, and that a low degree of illumination will suffice, provided that there is no stabbing of the eyes by brilliant, unguarded shafts of light.

A general change of lighting system may now be looked forward to, which has become possible through the cheapening of light by the perfecting of the incandescent gas mantle, and the introduction of the metallic filament lamp; the essential point being to so dispose the lights that the illumination should be diffused and reflected without its source being visible.

The Mining Industry and the Public Lands: Necessary Amendments to the Mineral Laws.

[By Mr. George Otis Smith, Director, U. S. Geological Survey.]

The following thoughtful and sequential address was delivered by Mr. George Otis Smith, Director, United States Geological Survey, on the occasion of the Twenty-first Anniversary, Michigan School of Mines, Houghton, Mich., the 9th inst.

The increasing share which the United States Geological Survey has been asked to take in the public land administration by the Interior Department has brought many of the problems connected with the public land laws more directly to the attention of those charged with the work of this bureau. For over 30 years, however, these problems have interested the survey geologists who have had exceptional opportunities for first-hand observation in nearly all the important mining districts of the country, and for almost as long a period the engineers of the survey have been in touch with the irrigation and power developments in the public land States. This intimate experience with both field conditions and administrative problems justifies an expression of opinion which may be appropriate to this occasion.

The objects to be sought by amendment of the public land laws are: First, purposeful and economical development of resources for which there is present demand, with retention of such control as may insure against unnecessary waste or excessive charges to the consumer; and, second, the reservation of title in the people of all resources the utilization of which is conjectural, or the need of which at least is not immediate. The means that are essential to the attainment of these objects are: First, the classification of the public lands; second, the separation of surface and mineral rights: and, third, the disposition of the lands on terms that will secure the highest use, enforce development and protect the public interest. Legislation based on these principles will not only secure the positive benefits of immediate utilization, but will also avoid the evils of speculative holdings of lands by fictitious use or by admitted non-use, for the future enjoyment of the unearned increment or of the profits of monopolization. With actual development made a condition of possession, and with land classification and separation of estates made preliminaries of disposition, the preseut day utilization by individuals or corporations, and the reservation to the people for future use become at once possible without conflict of interests.

The classification of the public land is essential to the administration of, not only such laws as express the principle of separation but also of those whose purpose is to promote the highest use of the land. Land classiflcation is, first of all, the determination of the best use to which each particular portion of the public domain can be put; and, by the organic act of March 3, 1879, this duty was specifically imposed upon the Director of the Geological Survey. Under the withdrawal act of June 25, 1910, classification is made possible in advance of disposition and disposition can be postponed to await needed legislation.

The second step, both in principle and practice, appears to be that of making possible by legislation the separation of surface and mineral rights, whenever the two estates have values which can be separately utilized. A notable advance in public land legislation was the passage of the acts of March 3, 1909, and June 22, 1910, which provide that patents issued thereunder grant title to the surface of the land only, and thus permit the agricultural development while at the same time the United States retains title to the underlying coal deposits.

On the subject of water power legislation the position of the Geological Survey is essentially that set forth in January of this year, in a report addressed to the Secretaries of the Interior and of Agriculture, by a joint-committee representing the two Departments. The legislation there outlined would provide for lease of public and reserved lands of the United States valuable for water power development for a fixed term, not to exceed 50 years, with moderate charges for use and occupancy of the land, and revocable only upon breach of conditions or on account of the charge of excessive rates to consumers. These leases should be identical in terms, whatever the Department under which they are granted, with joint and uniform regulations governing all matters relating to water power development of land belonging to the United States. Provision should also be made for periodic and equitable readjustment of charges, transfer of leases, preferential rights to renewal, and compensation for improvements at the termination of the leasehold. The law should specifically recognize water power use as dominant, and both insure to the lessee undisturbed occupancy of the land needed for such use and reserve for future utilization all the land believed to posses value for water power development, these lands to be designated by the President, but to be open to other entry subject to this reserved right wherever separation of the water power use and other use are possible.

The chief advantage of land withdrawal and classification lies in the essential relation to the principle of proper disposition of the public domain, the real purpose of public land administration being to secure such reservation or disposal of the people's land as will assure its highest use. The question of amendment of the present laws relating to the disposition of coal, oil, gas, and phosphate deposits on the public domain is recognized as fairly before the public by the specific mention of these minerals in the Withdrawal Act.

The coal land law is unquestionably the most satisfactory of the present mineral land laws, in that it admits of the placing of an adequate valuation upon the deposits, and in the administration of this law the purpose is not only to base the appraisal price upon the quantity and quality of the coal present and to give consideration to every known physical and commercial factor affecting the value of the deposits, but also to make the selling price approach as nearly as possible the present purchase of a royalty under a leasehold. Thereby it is intended to permit purchase for immediate development, at the same time preventing or to at least discourage purchase for long-time investment or for monopolization. So many factors, however, require consideration that an ideal adjustment of the values is well-nigh unattainable for many if not for most coal lands, and on this account a strong argument may be made for support of the lease over the sale system. Under leasehold it would be comparatively easy so to adjust the relationship between ground rental and royalty as to prevent the acquisition of coal deposits until such time as their development should be profitable. On the other hand, it is possible, under the present law, and it is the policy in its administration, to readjust the prices from time to time, either by reduction to encourage development in special cases, or, more commonly, by raising the price on account of increased value due to new discoveries or to changed commercial conditions. Hardly less important, moreover, is the better control possible under a lease system, although against the advantage of such control must be weighed the cost of Federal management and the possibilities of inefficient administration or even maladministration. The present coal land law, however, has one serious defect, which should be remedied if a leasing law is not enacted. The restriction of area that may legally be acquired to a maximum of 160 acres for an individual and 640 acres for an association is not in accord with good mining practice. The fixed charges on the cost of a modern coal mine, provided with the up-to-date equipment necessary to conserve life and property and to assure maximum recovery, are too high to be assessed against the tonnage of so limited a tract, especially if the coal seam is of moderate thickness. A law designed to promote the practical utilization of coal deposits, whether the system contemplates sale or lease, must provide for the holding of a large enough unit to permit the opening and equipment of a modern mine and to warrant its operation on an economical scale. Without such provision for commercial operation too great an advantage is secured to the land-grant railroads and large coal companies already in possession of considerable areas of high grade coal.

The present uncertainty whether the phosphate rock of the public land should be entered under the lode law or under the placer law is conclusive evidence of the need of legislation. As a matter of fact, neither of these laws is more applicable to the acquisition of beds of phosphate-bearing limestone than it would be to that of coal beds. The realization that the phosphate deposits are more extensive than

was known or suspected when the Survey geologists began land classification work in Idaho and Wyoming does not lessen, but rather increases, the urgency for a leasing law which will provide for the utilization of this large supply of mineral fertilizer, so as to meet both present and future needs.

The most urgent need of legislation for the disposition of mineral deposits is in the case of oil and gas. It is most apparent that the placer law, which is none too well adapted to meet modern conditions in mining placer gold, is wholly inadequate as a method of dealing with public oil lands, inasmuch as the discovery of oil is a late stage in the exploration and development of the land claimed under the law. Thus, large expenditures, extending over several months, if not years, are necessary before any right is acquired against the Government, and during all this time there is lacking any legal protection of the oil prospector against unscrupulous claimants or competitors better backed by capital. The need for remedial oil legislation is somewhat less acute than it was a year ago, by reason of the passage of the act approved March 2, 1911, the effect of which is to validate a class of claims which, while clouded by the construction which the Department was forced to place upon the misfit placer law, under which title to oil lands must now be made, were *bona fide* in that the inception of their development antedated the oil land withdrawals. This enactment was in accord with the spirit of the withdrawal act, which provides for the protection of equities already established.

The need for a better law is, however, imperative and the legislative action demanded by the situation should not be limited to an attempt to revamp the general placer law, but should be the enactment of an altogether new measure, especially adapted to provide for the sane and equitable development of this industry in the future. First, the new law should authorize the issue of exploratory permits, granting to individuals or associations the exclusive privilege of occupation, the sole condition of such a grant being diligent and adequate prosecution of development work, measured by the expenditure of fixed sums within certain periods, with possibly the payment of a small fee to the Government in lieu of such expenditure during the first 6 months. The issue of this permit should preferably be limited to one to each citizen or association of citizens, although after the lapse or surrender of such a permit the former holder should be allowed to again apply for an exploratory permit. In the second place, the law should provide that, upon discovery, the holder of the permit be given a leasehold title with a royalty varied to meet local and actual conditions. The "wild-catter," or prospector in unproved country, whether such unproved territory is classified on geological evidence as oil land or not, should be given special privilege to offset his greater risk. This privilege might take the form of an increased acreage, held both under permit and under lease, or a practical exemption from the payment of royalty, merely a nominal rental being charged under the lease. The chief advantage of the leasehold for oil over a fee simple title lies in the prevention of monopolization through large holdings. Such large holdings without production would be guarded against by a ground rental sufficiently high to discourage the acquisition of lands, except for immediate and continued development, although provision should also be made in the lease for surrender under terms which would protect the Government.

This indirect control of development would be preferable to the direct enforcement, by forfeiture, of continuous production, which should be avoided because of the danger of disturbing the delicate equilibrium between supply and demand. Transfers of interest, under either permit or lease, should be permitted because of the absolute necessity in most instance of securing capital for both drilling and operating an oil well. The law, however, should set forth the purpose of such control of transfer, which would be to provide protection for the original locators, most of them men of small means, and more especially to secure the prohibition of too large holdings of government leases by big companies.

Proposed amendments of the well-established laws relating to metalliferous minerals always raise the warmest discussion. With the opinion of mining men in general favoring revision of the mining laws of the United States and with commission after commission appointed by various bodies to suggest improvements, the statutes have remained practically unchanged for nearly 40 years, while the geology of ore deposits and the technology of metal mining have made marvelous progress.

The law of the apex has proved more productive of expensive litigation than of economical mining. In many of the more recently established and more progressive mining districts this statute has been made inoperative by either common agreement or compromise between adjoining owners. Its repeal could not affect established equities under patents already granted, but would render possible more certain property rights in large mining districts as yet undiscovered, where new and valuable claims will be located 100 years from now. The unit of disposition should be the claim, preferably square, limited on its four sides by vertical planes, and of a size sufficient to allow the miner occupying two contiguous claims to follow the vein or lode to considerable depth, even if its dip is only 45°. Such definition of a mining claim is found practicable in both Mexico and British Columbia, and in the latter country the change from the apex law was effected without trouble or confusion.

The same knowledge of natural conditions that leads to the suggestion of a repeal of the law of the apex forces the further suggestion that discovery of ore in place cannot be made universally a prerequisite to the location of a mining claim. Geologic study of ore deposits has furnished examples in a number of regions where the present law cannot be complied with, although rich deposits exist underground and their extent can be more definitely surmised than in most cases where ore is discovered at the surface. To meet such actual conditions the law should provide for the acquisition of metalliferous mineral land classified as such upon the basis of adequate geologic evidence, whether actual outcrops are present or not.

Most important, perhaps, in any amended mining law would be provision for enforced development, a principle expressed, it is true in the present law but not effective in its workings. A requirement of actual use as a condition of occupancy of mineral land cannot be regarded as either novel or radical. As regards the large acreage of undeveloped land in many mining camps to which patent has already been issued, it is perhaps true that the situation is without relief, unless the Western Australia plan is adopted, whereby the government steps in and permits mining under a lease, the proceeds of which are assessed, collected, and paid over to the owner. The principle invoked seems to be that no property owner can rightfully oppose the development of the State.

In the case of unpatented claims a remedy should be sought for what has been termed "the paralysis of mining districts," and the rigid requirement of annual assessment work should be made actual and effective by inspection and supervision, in order to put an end to the present procedure of allowing a claim to lie idle for practically 2 years after its location, not to mention the many localities where claims are held year after year with only perfunctory compliance, or even without any performance of assessment work—a type of local disregard for law that is in striking contrast to the observations accorded to the district customs and regulations of earlier days, whereby the right of possession was made absolutely dependent upon continuous operation.

The remedy, then, for the existing evil of idle mining property must be sought either in the adoption of leasehold, under which the Government can enforce operation, a system which fully attains the desired end of promoting mining development in Australia and New Zealand, according to the report made in 1907 by geologist Veatch, of this Survey, to the President, or in the thorough revision of the existing system. Radical amendment to the present law would be necessary in order to secure something more nearly approaching equality of opportunity. Some limitation should be put on the number of claims which an individual can locate in each mining district, and the prevention of monopolization would be furthered by the rigid enforcement of assessment development. The record of claims kept by a local official elected by the miners should be reported promptly to the nearest land office, in order to furnish the Federal Government with a notice of the intention of the claimant, and thus to initiate the operation of effective inspection, the purpose of which would be to enforce the use and development of mineral land as contemplated in the law.

Whatever the details that may characterize this or that amendment to the public land laws, the essentials to be sought are development of those resources for which there is present need and the protection of the other resources for which there is no immediate demand. To this end the lawmakers in my opinion should concern themselves more in retaining such control as will prevent either nonuse on the one hand or waste on the other, than in devising means of increasing the public land receipts by heavy royalties on the producing coal mine or hydroelectric plant. Tax instead the idle property. Through the full development of the mineral industries the nation can secure indirect benefits far in excess of any direct profits in the form of fees or royalties.

Interesting Legal Opinions
RESPECTING GAS PRACTICE.

[Prepared for the JOURNAL by MR. JOHN EDSON BRADY.]

Escape of Gas Held to be Proximate Cause of Injury.—The plaintiff, in an action to recover damages against a gas company, showed that, at the time of the accident, which was the basis of his action, he had just entered a restaurant and taken a seat at one of the tables. At that moment there was an explosion of gas which had escaped from the defendant's pipes and accumulated in and about the building. The plaintiff obtained a verdict for $8,555 damages, from which the Company took an appeal.

The facts, in brief, were these: On arriving at his restaurant, about 6 o'clock of the morning of the explosion, Cressaty, the proprietor, noticing the smell of gas, telephoned to defendant's office that gas was escaping and that he wished it attended to immediately. Nobody coming, he telephoned at 7:30, saying that the smell was much stronger and that there was a dangerous leak. At 8 o'clock he telephoned again for the superintendent. Defendant's foreman, of the mechanical and complaint department, testified that he was first notified of the leak at Cressaty's at about 10:40 in the morning. No one had informed him about it before that time; if they had done so he would have sent a man to repair it. The foreman sent two men to the place and shortly after followed them. He reached there about 5 minutes of 11, without tools. Neither of the other men had tools. They told the foreman that the service pipe was broken, that the leak was under the floor and that the gas was gushing up with a sizzling noise. The foreman sent one of the men back to the office for a flashlight and tools with which to saw the flooring, for the leak was in a dark corner of the basement, and the foreman was afraid to chop up the floor with a hatchet lest, striking a nail, he might produce a spark, causing an explosion. The foreman gave directions to Cressaty to extinguish all lights in the restaurant, and Cressaty said, "all right." One of the men remarked that he had given Cressaty the same directions before. The foreman and one employee went across the street to lunch while the third went for the tools. None of them took pains to see whether the directions to extinguish the lights had been carried out, although all knew that gas was escaping in large and dangerous quantities. There was fire in the range and gas was burning under a large coffee urn. When the man came back with the flashlight and tools the foreman handed the flashlight to Holderman, the other employee, and told him to proceed. Holderman was about 10 feet in advance as they walked toward the location when the explosion occurred.

The question was whether the escape of the gas, or the leaving of a light near the gas, was the proximate cause of the explosion. It was held that those two circumstances were jointly the proximate cause of the explosion and that the Gas Company was properly held liable. The verdict was affirmed. Merrill *v.* Los Angeles Gas and Electric Company; Supreme Court of California, 111 Pac. Rep., 534.

Liability of Gas Company for Explosion of Gas in Public Street.—In an action brought by Charles Hashman against the Wyandotte (Kas.) Gas Company, he alleged that he was seriously injured by an explosion of gas that had accumulated in a catch basin from leaky and defective pipes which the Gas Company had laid and negligently maintained in the streets of Kansas City. The jury returned a verdict awarding damages to Hashman in the sum of $1,500. The Gas Company appealed and one of its principal contentions was that the verdict was not supported by the evidence. There was direct proof that quite a number of gas pipes for carrying gas were laid and maintained in the streets near the point of the explosion. These pipes were of different sizes, some of them being 12 inches in diameter, some 8 inches, some 6 inches and some 4 inches. Some of them had been in the ground about 9 years and were considerably rusted and scaled. To prove that gas escaped from them testimony was offered to the effect that about 2 or 3 weeks before the accident gas which came up through the ground was found burning on the street near the corner where the explosion occurred. About 4 days before the accident occurred, gas was found escaping from the pavement about 10 feet from the place of the accident, and it was burning. When the plaintiff and his companion sat down on the edge of the catch-basin, he struck a match for the purpose of lighting his pipe, when the explosion occurred, which threw him about 15 feet, and the shock was sufficient to break plate glass windows in the adjacent buildings. A witness who was uncertain about the time, but afterward said it was subsequent to the explosion in question, said that he saw gas escaping from the pipes, and that one of the pipes had a hole in it from which the gas whistled as it passed and he could feel its force against his hand.

While there was no direct evidence that anyone had informed the Company of the escaping gas, it was held that the fact that the gas was escaping through the ground and burning on the street in a densely populated section of the town was sufficient notice to bring the matter to the attention of the Gas Company, if it had been using an efficient system of inspection. The taking of reasonable precautions for the detection of leaks would have acquainted defendant with the defects in ample time to have repaired them. The jury had a right to infer that the Cas Company either knew, or should have known, of the leaks and defects before the explosion. The verdict was affirmed. "Hashman *v.* Wyandotte Gas Company;" Supreme Court of Kansas, 111 Pac. Rep., 468.

An action was brought against the Boston Gas Light Company by one Hutchinson, reported in 122 Mass., 219, to recover damages for injuries done by fire to the plaintiff's building on the night of November 10th, 1872, following closely upon the great conflagration of November 9th of that year, in which a large part of Boston was destroyed by the flames. At the time of the fire, for which suit was brought, the streets were filled with debris and the entire city was in the control of the militia and police. Gas was escaping from many points where the mains had been broken through conditions brought about by the fire. The force of men employed by the Company was far from sufficient to properly handle the situation. It was claimed by the plaintiff that the defendant was guilty of negligence in not ascertaining in what portions of the city gas was leaking in dangerously large quantities and in shutting the gas off from those sections. But the court could find no evidence of negligence on the part of the Company and the Company was accordingly held free from liability. In the opinion it was said: "Although there was evidence that the defendant had a large number of valve boxes in the vicinity of the place where the explosion occurred, none of which was closed for the purpose of shutting off the gas, yet it was not shown that, if all had been closed, the leak would have ceased, or that it was practically possible to reach and close them. It is evident that there must have been a great and sudden demand upon all the resources of the Company in men and means to meet the requirements of the occasion. Gas was escaping from all parts of the burned district. There is no evidence that all resources were not exhausted in duties that were equally or more pressing, as they were presented at the time."

PROCEEDINGS, FOURTH ANNUAL MEETING, CANADIAN GAS ASSOCIATION.

HELD IN THE CITY HALL, QUEBEC, JUNE 15, 16 AND 17.

FIRST DAY—MORNING SESSION.

The Fourth Annual Meeting of the Canadian Gas Association was opened, with a large number in attendance, in the Assembly Hall room in the City Hall, Quebec City. The Chair was occupied by J. S. Norris, Esq., who presided in the absence of President Arthur Hewitt, who was not able to be present owing to the lamentable death of his son by drowning. The following

ADDRESS OF WELCOME

to Quebec City was tendered by Lawrence A. Cannon, Esq., pro-Mayor:

Gentlemen: It affords me great pleasure, in my capacity as pro-Mayor of the City of Quebec, to welcome your Association within our walls. I may say—and Mr. Wallace local Manager of the Gas Company will certainly bear out my words—that gas companies are welcome in Quebec. Not that we have not a very good service from the Company we now have, but I suppose, by discussing the best means to cater to the public needs, that you will probably improve the service not only in Quebec, but all over Canada. I hope you will enjoy your stay here. We give you the freedom of the city. You can do whatever you like provided you do not cause too many explosions. [Laughter.] I know that when dealing with gas people one never knows exactly when an explosion may happen; but, on the other hand, I know you are practical men and business men; that you are here for business first, and pleasure afterwards, and I hope that you will combine both, and that it won't be too hard for

you to enjoy your stay in the old City of Quebec. I note this morning a change for the better in the weather, and there could be no brighter reason for it than your presence. We have had a very bad spell of weather for the last 5 or 6 days, but now I see that everything is starting under new auspices and I wish you the best success in your session. If we may be of any use to you or any of our officials we are entirely at your command, and we place the City Hall here at your entire disposal.

I thank you for the opportunity you have kindly given me of addressing you a few words, and wish that you would accept, on behalf of the citizens of Quebec, our very best wishes for the success of your convention and for the success of your organization. [Applause.]

Chairman Norris.—I am sure we are all delighted with the words of welcome spoken to us by the pro-Mayor, Mr. Cannon. Personally I do not know very much about Quebec, but through business visits to it I know a great many of its citizens, and if they are all as broad-minded as Mr. Cannon, and my other friends as well, I am sure it is a gratification for any public service corporations to be in their midst. I will ask Mr. Wallace, who knows the local conditions better than I do, to respond formally to Mr. Cannon's speech of welcome.

Mr. Wallace—Mr. Cannon, on behalf of the Canadian Gas Association we tender our sincere thanks to yourself and to His Honor, Mayor Drouin, for the kindness extended to us, the courtesy of having provided accommodation for the meetings and in general the invitation for the freedom of the city of Quebec. This city, as we know, was the scene of strife in the past, not military alone, but commercial, as some of us perhaps are very much aware. The Canadian Gas Association, I might say, is formed for the purpose of holding its meetings annually to discuss methods of improving the gas service and of cultivating not only a better feeling among ourselves, but also for determining the best methods of cultivating a more kindly feeling with the public and a better understanding with the public. We are not, as generally supposed, monopolists; we have some very keen competition, and have to meet opposition as other commercial enterprises have. Our object in meeting, as I said before, is to discuss methods whereby we not only can meet the competition, but improve the service to our benefit and that of public generally. To the members I might say—as we have already had evidenced—you will find the people of Quebec very warm hearted, and who will all extend to the members of this Association a very kindly welcome. I do not know that I need refer particularly to the many points of interest. Mr. Cannon has very kindly extended a very general invitation to visit all points, and I won't say any more than again to thank him for the courtesy extended to us. [Applause.]

The Chairman—In the unavoidable, and very regrettable, absence of the President of this Association, I formally call to order the Fourth Annual Convention of the Canadian Gas Association. I say the regrettable absence of our President, Mr. Hewitt, under most deplorable circumstances. Having everything arranged to be on hand he was suddenly afflicted by the loss of his eldest boy, who was drowned in Toronto Bay last Sunday. Death is regrettable and deplorable at any time, but under these circumstances I am sure we all feel for Mr. Hewitt and his family in their exceeding affliction. And if there is either gratification or reconciliation for the parents at all, I think it must be in the knowledge that their boy was lost in an heroic effort to save others; having rescued two from an overturned boat, he became exhausted and sank before rescue came to his aid. It would only be fitting for our Association, while in convention this morning, to depute somebody to draft a resolution of condolence, to be either telegraphed or forwarded to Mr. and Mrs. Hewitt in their sad bereavement. I think Mr. Keillor and Mr. Wallace might be deputed to draft that resolution in the name of the Association. Now, reaching the formal order of business this morning, the first item will be the reading of the minutes of the last meeting, which I will ask Secretary Keillor to read.

The Secretary—As the "Proceeeings" of the last annual meeting were printed and copies circulated amongst the members, I move these be taken as read. [Seconded and adopted.]

The Chairman—The next order of business is the

REPORT OF THE EXECUTIVE COMMITTEE,

which was read by the Secretary and thus

Discussed.

The Chairman—Well, gentlemen, we have listened to an interesting and instructive report, that contains several matters of vital importance to the gas industry in Canada, and I thank the Committee. Although I signed the report myself I did not do any active work on it during the year. However, I subscribed to it this morning, but apart from myself the thanks of the Association are due the Executive for their effective work on these important questions that are contained in the Report during the year. First of all, you will see we have had success in convincing the Government of the necessity of discarding an obsolete burner for candle power tests and substituting the No. 2 South Metropolitan burner. Every practical gas man knows what that will mean to the gas industry. Following that we have the recommendations of the Committee for the incoming officers to follow in the hope—in the fair hope of attainment—of having the Government go a little further by abolishing the candle power test altogether and substituting the calorific test, which in this age of the industry is of more vital importance I think than the candle power test can ever possibly be, the gas largely being consumed in bunsen burners. As to the duty on coal, that matter is pending. In view of the reciprocity agreement pending also between the United States and Canada, it is my belief thereon, if we meet the American tariff at any rate it is all we hope for, and it will mean a saving to the consumers in the cost of coal of 8 cents a ton which, in the words of the Report here, will mean $25,000. Another thing for which the Committee has been partly responsible is in having the Government adopt a revision of rate of gas inspection schedule, wherein it is decided to reduce the rates to about an equivalent of $18,000 a year. I roughly figured sometime ago, when the Government made the announcement that it would represent about 15 cents a meter. So where we have been paying 75 cents for 3 and 5-light meters hereafter the presumption is we will pay about 60 cents. The Government officials, as I understand, have expressed themselves that they do not want to make any profit on the thing, just wish to meet expenses. And while they really have not demonstrated this in the past, inasmuch as they got what appears to me to be an abnormal profit from the year's operation, I think if we can keep after them persistently we will get them to operate at actual cost with fair reserve for contingent purposes; if we do that I do not think the cost of testing meters should exceed 35 cents instead of 60 cents, which will probably be the new rate. The Report is open for discussion, and if there is to be any question or suggestion thereon, we would like to have either or both. If no discussion, gentlemen, I would thank somebody for a motion moving the adoption of the Report.

On motion of Mr. Carter (seconded by Mr. Gardner) the report was ordered received and adopted.

The Chairman—The next order of business is the

REPORT OF THE SECRETARY-TREASURER,

which (on motion of Mr. Wilkinson, seconded by Mr. Folger) was ordered received and filed.

(To be Continued.)

The Operation of Water Gas Generating Machines.

By MR. R. A. WALLACE, Quebec.

The question of determining the most satisfactory method of operating and obtaining the highest efficiency in water gas machines is commanding more attention every year. The ever increasing cost of material and labor, coupled with a desire to furnish the product to the consumer at the lowest rate, makes it more than ever necessary that close attention be paid to details of manufacture hitherto ignored; and while it is true that a good deal of care and study have been devoted to the further development of the process of manufacture, and marked improvement has been effected in economy of operation and convenience of arrangement, there is still a wide difference in results obtained at different works, due no doubt to the type of apparatus in use, and materials employed for gas making and the methof of operation.

The development of the gas engine, and the increasing demand for a cheap high power gaseous fuel for industrial purposes, have done much to further the interest in the development of water gas producers, as the result of which many experimentalists have endeavored to devise some type of machine which will reduce the cost of the gas product by obtaining a higher efficiency from the fuel consumed; and we have to-day several types of isolated plant in daily use in large manufacturing establishments, the efficiency claimed for these plants being obtained by some modification of previously existing designs in which, by changes in the method of operating, the regulation of

the depth of fuel and air supply, or the adoption of generators, some slightly higher fuel results have been obtained. The process referred to, however, deal with the generating of non-illumi nating water gas for fuel purposes only, and do not, therefore particularly interest the manufacturer of an illuminating gas, the results obtained in anyone showing no comparative higher efficiency than can be obtained in plant of the type in most general use when employed for the same purpose.

Water gas is usually referred to as the product of the decomposition of steam in the presence of incandescent carbon, the reactions which take place being indicated by the formula:

$$C + H_2O = CO + H_2,$$

in which 12 pounds of carbon combine with 18 pounds of water "as steam" to form 28 pounds of carbonic oxide and 2 pounds of hydrogen, or 757-268 cubic feet of pure water gas at a temperature of 60° F. and barometer at 30 inches. This formula, however, refers only to the generation of non-illuminating water gas, and indicates the combining quantities of the elements as resulting in laboratory practice under ideal conditions. It cannot be accepted as an index of results to be obtained in the production of carburetted water gas on a large scale for commercial purposes, as it does not consider the factors of loss which are unavoidable, such as the heat required to raise the steam, the energy expended in bringing the fuel to necessary temperature, the heat utilized in the gasification of the oil used for enrichment, or the loss of heat due to radiation from the shells of the apparatus or carried off in the blast gases and the finished product of the generator; nor does it indicate in any way the complexity of reactions which take place in every machine as the result of differences in temperature of the fire, rate of flow of steam, and amount of impurities in the fuel, all of which go to the making of a finished product of varying composition.

In the earlier days of carbureted water gas making, when the principles neccessary to secure the highest efficiency were not so well understood as they are to-day, many different types of plant were exploited, all claiming some point of superior merit; some of those are still in use. Nearly all, however, have given way to the generator-superheater type, in which the gas for illuminating purposes is made, carbureted, and fixed in one operation. Of this type of plant there are now several builders whose designs do not materially differ, such differences as there are being mechanical details or conveniences of arrangement, and in the selection of any one of them no great mistake will be made, provided such only is chosen as has demonstrated merit under the required conditions, with due consideration to the capacity of the plant in relation to the demands of output. If the machine is too small it will entail overworking and a heavy expense for repairs, if too large there will be a high fuel consumption as a result of stand-by losses. It is advisable, however, that every set be provided with devices which will serve to indicate the rate of flow of air and steam, and a recording instrument which will enable the superintendent in charge to determine whether any set of conditions as laid down by actual experiment, are being followed in every day working.

Fuel.—The fuel to be used is largely a question of local conditions. Anthracite coals, oven coke, or gas house coke are used, according to the location of the plant and cost of transportation, and whether used in conjuction with a coal gas works; but, whatever kind of fuel may be used, some knowledge of its composition is necessary to form a correct idea of its suitability for the purpose of gas making and the best mode of manipulation. Anthracite coals are usually known by the name of the district in which they are mined, and these may show considerable differences in physical properties and composition, not only from the different mines in the same district, the percentage of carbon varying from 80 per cent. to 92 per cent., and the ash from 3.75 per cent to 14 per cent. According to the color of the ash these coals are called red or white ash coals. The red ash coals contain a considerable proportion of oxide of iron, which is likely to prove troublesome in the formation of clinker and cinders which melt and adhere to the grate bars and sides of the generator, entailing increased labor in cleaning the fire. The physical structure of the white ash coals is more dense, and while somewhat more difficult to kindle than the red ash variety, are better suited to stand transportation and handling, without the formation of a high percentage of slack, and less tendency to crumble in the fire under conditions of heavy blast pressure and high temperature. Furnace coke, when carefully selected as to quality and size, makes a very suitable fuel for water gas making, and by reason of its denser character is less frangible, therefore more likely to permit of longer runs than gas house coke, though in its physical structure it may be porous and light or compact, dense and heavy, or hard and capable of sustaining a high crushing strain, or soft and brittle with a low compressive resistance.

Gas House Coke.—By reason of its being a by-product of the manufacture of coal gas, gas house coke is used extensively for water gas making. Its composition and relative value as a generator fuel are subject to even greater variations than either anthracite coal or furnace coke, according to the quality of coal carbonized, the mode of carbonization, and the way it is handled and stored.

In the printed analysis of 65 samples of gas house coke, produced from English, American and Canadian gas coals, the percentage of fixed carbon varies from 61 to 96.80, the amount of ash from 86 to 22.31, and the quantity of sulphur from 1.34 pounds to 10.75 pounds per ton of coke. When stored in the open gas house coke will absorb a greater amount of moisture than either of the other fuels, while if stored in heaps for any length of time, or handled frequently, the quantity of resultant breeze in some varieties may run as high as 40 per cent. of the total coke.

Carburetting Materials.—The enriching material per 1,000 feet made is usually the largest item in the cost of making carburetted water gas. Crude petroleum or some product thereof is now universally employed for the purpose, the selection being mainly a question of cost per gallon delivered and the possible revenue from the residual tar. Gas oil, or the product of distillation which passes over from the still between the "burning or lamps' oils and the heavier lubricating oils" of specific gravity .823 to .853 (40° to 34° B.) being generally used throughout Canada. The determination of the value of any sample of gas oil by laboratory experiment is not a simple operation, for few works in the country are equipped to conduct such an experiment. A knowledge of the specific gravity of an oil does not impart much information of its real value as an enricher, but serves as a means of forming an idea of what percentage of tar might be expected from its distillation and the relative temperatures to be carried in the apparatus for its gasification. The oils containing the highest percentage of hydrocarbons of the paraffine and olefine series are the best enrichers, but as we are confined to a very limited variety the question is not so much the composition of the material in use as how to get the best possible results from it. The oil should, however, be free from water and dirty sediment, and should remain fluid at ordinary temperatures, or trouble will be experienced with the oil sprays.

Operating.—The argument sametimes made use of by advocates of water gas, that no skilled labor is required in the working of the apparatus, is certainly a mistaken idea, or is applicable only when conditions arise which demand that the supply be maintained irrespective of economical considerations. To secure satisfactory results the operator must be intelligent enough to understand that the constantly changing conditions in any water gas machine require more careful attention than the mere shovelling of coal into the generator and the opening or closing of a few valves at stated intervals. He must become familiar with every part of the set and be interested enough in its performance, to endeavor to secure the highest possible results. Much of the performance of any generating set depends on the intelligence of the man operating it and the amount of interest he takes in his work. There is no general set of rules which will apply in every case. The best method of working must be determined by experiment for each size or type of apparatus and for different kinds of fuel and oil. When charging the generator with fuel the size of the lumps and the manner of its distribution affect to some extent the amount and quality of gas produced. The size will vary somewhat with the diameter of the generator, that selected being such as will offer the greatest amount of exposed surface to the action of the air and steam while permitting a free passage for both in the interstices between the lumps. The fuel should be charged round the sizes at one coaling and to the center at the next, so as to maintain an even density of the fuel mass throughout, or preferably slightly higher round the sizes of the generator, for there is always a tendency in the fuel to pack more tightly in the center. If the size of the fuel be too small too much resistance will be offered to the blast of air, requiring an increased amount of power in the blower; if too large, the spaces between the lumps will be so open as to allow a large amount of steam to pass through undecomposed.

Blast Pressure.—The blast pressure carried on the machine will also influence the results obtained. A pressure of 15 to 18 inches of water is necessary to keep the generator fire in good condition and

carry the gases over from the generator so as to insure their combustion in the other vessels, which otherwise might take place in the upper part of the generator itself. With too heavy a blast, when small or light fuel is used, particles of the unconsumed fuel will be carried over and deposited on the checkerbrick of the carburetor. A good, stiff blast pressure will enable the operator to reduce the length of the blow thereby increasing the capacity of the set. The connections between the different shells and the arrangement of checkerbrick being such as will permit of the passage of air through them with the least possible resistance.

Steam.—Authorities are not at all of one mind as to the best method of admitting steam to the generator, since some favor admitting all the steam the fire will decompose during the first part of the run, reducing the rate of flow correspondingly with the reduction of temperature of the fire. This method of operating, however, involves such close attention to the steam valve that other points are likely to be neglected. A simpler plan is to determine the rate of flow which will give the best results during the length of run decided on, and maintain that rate until some changes have been made which require other conditions. An excess of steam should be avoided, as it will only result in the rapid reduction of the temperature of the fire, the formation of a larger percentage of carbonic acid, and decreased candle power results in the gas. It is essential that dry steam be supplied to the generator or the fire in the lower part of the generator will be rapidly cooled, reducing the length of the run and increasing the fuel account by the absorption of heat which might be utilized to better advantage in its decomposition.

Oil Sprays.—The oil sprays should be so constructed and so placed in the carburetor as to produce a perfect spray of oil over a large surface of the checkerbrick, to insure its complete volatilization and diffusion with the water gas coming over from the generator. To secure good oil results the regulation of the temperature in the carburetor and superheater, to suit the grade of oil in use, is of importance. A heavy grade of oil will require a higher temperature for its permanent gasification than a light one, while if the temperature be excessive the result will be a heavy deposit of lampblack on the checkerbrick; if temperature be too low the oil will not be thoroughly gasified and will condense before reaching the storage holder. To obtain a correct idea of the conditions prevailing in any water gas machine, or to be able to make an intelligent statement of the efficiency of the apparatus, would require the use of scientific appliances, and the expenditure of an amount of time which are not at the disposal of many superintendents in charge of small works.

In a paper prepared by Mr. A. G. Glasgow, read at a meeting of the American Gas Light Association (1890) entitled, "The Practical Efficiency of an Illuminating Water Gas Set,"[1] the author laid down the following rules as the secret of fuel economy: Keep the generator fire in a uniformly hot and healthy condition, varying as little as possible from the best temperature for gas production. Never admit an excess of steam. Always admit a sufficiency of steam. So adjust the blast that the generator and superheater shall reach their proper respective heats simultaneously while all the oxide produced is being consumed in superheater with no excess of air. Keep the superheater bricks clean. To those who have the necessary appliances there would be no difficulty in ascertaining if the proper conditions are being maintained. Without these we must have recourse to more ready-to-hand methods. The condition of the fire can be determined by direct observation through the top and bottom openings of the generator, and by observing the differential pressure between bottom and top as indicated by the gauges. An excess of steam can be detected at the test-cock on top of the generator. If no undecomposed steam is passing the test, light will burn throughout the run; if steam be in excess it will pop out. If the oil sprays are not working properly and are throwing a stream of oil in one part of the carburetor, instead of distributing it evenly over the whole of the top surface, dark streaks will show on the checkerbrick where the heavy jet of oil comes in contact with them. The supply of secondary air can be kept at the right point by watching the escaping gases at the stack valve, and the air valve should be so regulated that only a short, puffy, blue flame will show at this point toward the end of the blow. With good operating conditions the checkerbrick will ordinarily last without changing from 800 to 1,000 hours, the necessity for a change being indicated by an increase in fuel and oil used to maintain a given candle power; but if the plant is not properly handled, the checkerbrick will require changing in a much shorter time. If a stream of gas from the test-cock on the superheater is allowed to impinge on a steel plate such as a small trowel it will indicate the condition of working by showing lampblack or ungasified oil.

Those interested in a scientific treatise on the manufacture of water gas I would refer to the following papers: "Theory of Water Gas Process," by Doctor Strache and Doctor R. Johoda; "Journal of Gas Lighting," 1901; "Water Gas Making in Theory and Practice," by Mr. Kraamers, "Journal of Gas Lighting."

1. See JOURNAL, Dec. 8, 1890, p. 802.

High Pressure Gas Plant with Medium Pressure on Mains.

[Read by MR. F. H. SAWYER at the Montgomery Meeting of the Southern Gas Association.]

One authority states that about ⅓ of the gas plants of this country are in towns of less than 10,000 population, stating further that the census of 1900 gave 517 cities with over 8,000 population, as compared with 10,085 towns having less than 8,000 population. Naturally, therefore, the question confronting us is, "How can a town having the population between 5,000 and 10,000 have a gas supply that will be satisfactory to the consumer, at the same time prove to be a satisfactory investment for the investor?"

We constantly hear the Macedonian cry from neighboring towns, "Come over and give us gas;" for they realize that without it they are being deprived of the greatest household blessing of the times.

To lay out and construct a sufficient mileage of cast iron mains, to completely cover one of this size of towns, run up the original investment far beyond the point justified by the quantity of gas that can be sold. Especially is this the case when the cost of gas is higher and other household necessities lower than that charged for them in large cities. An oil company, for instance, can establish a distributing plant in a small town for a modern sum, and begin business with one man, who becomes driver and salesman, selling oil at practically the same figure that it is being sold in the larger places. Wood also is sold at a less figure than in the city, yet gas cannot be sold much below the present price to bring in a fair revenue on the investment made for the establishing of the gas plant; therefore, it has occurred to some gas men to build high pressure gas systems, and I believe that it remains for the Company that I represent to be the second to build a complete high pressure plant in the South. So we built at Goldsboro, N. C., last year a plant for the purpose of distributing gas under medium high pressure.

We started building this plant in March of last year, and have been operating it for a short time only. We can say that we are well pleased with the installation, believing it is a start in the right direction for distributing gas.

At our plant the gas passes from the gas apparatus direct to the holder. We have two 10 feet by 10 feet purifying boxes, located in the yard, and draw the gas with a compressor from the holder, through the purifying boxes, into a small reservoir; then pass it to the compression tanks, which are also the storage holders. The small reservoir, which is located between the compressor and the purifying boxes, is a cast iron pipe of 20 inches in diameter, the end toward the purifying boxes being reduced to 8 inches, the other end having a cap with a 3-inch opening with 3-inch pipe connections running to the inlet of compressor. This reservoir is for the purpose of relieving the purifying boxes of any vibration that may be caused by running the compressor. A 3-inch line leads from the compressor to the compression tanks. The compressor being located in the gas house building is under the eye of the gas maker at all times.

The compression tanks are two in number, 36 feet long and 8 feet in diameter, and are supposed to stand a pressure of 125 pounds; they rest longitudinally on concrete foundations, elevated 2 feet above the ground. Fig. 1 shows compression tanks located between gas houge and holder.

Valves are placed on connections to inlet and outlet of tanks, so that either one can be cut out, should it be found necessary. Each tank is fitted with a drain pipe to let out any condensation that may accumulate. The highest pressure carried in these tanks is 35 pounds, and falls to 7½ pounds before the compressor is again started. On the outlet line we have a Chaplin-Fulton governor which maintains a pressure of 5 pounds on the mains at all times, although the pressure in the tanks fluctuates from 7½ pounds to 35 pounds. We have found that the governor has worked perfectly. As an evidence, I submit chart herewith, giving graphic story of the main pressure for

(*Continued on page* 106.)

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NOTICE TO ADVERTISERS.

New Advertisements and changes of copy therefor should be in hand Wednesday noon of week prior to date of issue.

NEW YORK, MONDAY, AUGUST 14, 1911.

[Official Notice.]

Joint Gas Convention, Panama-Pacific Exposition.

Pacific Coast Gas Association,
Office of the Secretary,
445 Sutter St., San Francisco, Cal.,
July 28, 1911.

To the Committee on Joint Gas Convention, San Francisco, California, 1915: At the Eighteenth Annual Convention of the Pacific Coast Gas Association, and on motion duly made and seconded, a resolution was adopted to the effect that the Pacific Coast Gas Association invite all Gas Associations throughout the United States to hold a joint convention in San Francisco during the Panama-Pacific Exposition, in the year 1915, with a view of making it the greatest congress of gas men that has ever been convened. In compliance with such resolution, President Frank A. Leach, Jr., of Oakland, Cal., was instructed to name a committee to undertake the same, and has selected the following members of the Pacific Coast Gas Association to act upon such a Committee:

Henry L. Doherty, Chairman, 60 Wall street, New York city.

Thos. J. Cunningham, Editor American Gas Light Journal, 42 Pine street, New York city.

Lucius S. Bigelow, President "Light Publishing Co.," Buffalo, N. Y.

E. C. Brown, Publisher, "Progressive Age," 280 Broadway, New York city.

John F. Parker, Sales Manager Eclipse Gas Stove Co., Rockford Ills.

A. C. Humphreys, President Stevens Institute of Technology, 165 Broadway, New York city.

Walton Clark, General Superintendent United Gas Improvement Co., Broad and Arch streets, Philadelphia, Pa.

Alphonse Mason, Welsbach Company, Gloucester, N. J.

Henry H. Hyde, Manager Tacoma Gas Light Co., Tacoma, Wash.

Leon P. Lowe, 626 Pacific Building, San Francisco, Cal.

As the site for the Panama-Pacific Exposition has now been duly selected, and San Francisco will at that time have a civic center with a large Auditorium building, it will at once become known throughout the world as the "Convention City." With this in view, it is sincerely hoped that the Committee will be able to take up the subject in a general way at once, in order that they may be able to make a preliminary report as to progress, at our Nineteenth Annual Convention, which will convene at Oakland, Cal., September 19th, 1911.

The Panama-Pacific Exposition will undoubtedly be the greatest of its kind the world has ever seen, and San Francisco, having already made a reputation for itself in doing that which it undertakes to do in a most befitting manner, it is hoped that such work as this Committee can accomplish will bear fruit, and in the end be the means of bringing together all members of the profession in what has already been termed "The Greatest Congress of Gas Men that has ever convened."

Very truly yours,
John A. Britton, Secy.

[Official Notice.]

Wrinkle Department, American Gas Institute.

Wrinkle Department, American Gas Institute,
Office of Editor,
Denver, Col., July 5, 1911.

To the Members, American Gas Institute: The Editor of the Wrinkle Department, believing that the members of the Institute, in selecting him to direct this important division of its affairs, were also alive to the necessity of aiding him in the routine work connected therewith, takes occasion to ask now for this assistance. The meeting time is not so far from to-day that inaction will be unimportant. He, therefore, invites, in fact, solicits, suggestions from the members as to how this work may be best carried on, and hopes—believes—that valuable as the contributions to the department have been, the scope thereof may be still further enlarged. He will gladly receive matter related to any wrinkle that has been smoothed out in the narrator's experience; and those interested need not think it at all fundamental that the recital of their experiences should be co-related to higher mathematics, to abstruse calculations, or to the revealing of something absolutely new. Any matter describing a new, or seemingly new, way of getting over an old difficulty, is acceptable; yes, is welcome. Send in your description in your own language, and if there is any need of "touching it up," that is why the Editor is on the job. Whenever illustrations are to accompany the text, see to it that the drawings, sketches or photographs are in black and white. Get your story in shape and forward the same as soon as possible to

Gas and Electric Building,
Denver, Col.

A. F. Traver, Editor.

[Official Notice.]

Experience Department, Pacific Coast Gas Association.

Pacific Coast Gas Association,
Office of Experience Editor,
San Jose, Cal., June 24, 1911.

To the Members: The Nineteenth Annual Convention of the Pacific Coast Gas Association will be held in Oakland, September 19, 20 and 21. The Experience Editor of the Association is in despair. Cast him a line; come to his rescue, for he needs help. To the notices sent out by the Secretary, few have replied.

We know that every gas man has had at least one experience during the last year that would be of interest to us all. Will you kindly respond at once? We know you are busy; gas men always are. And busy men have many experiences worth telling.

Sincerely yours, John D. Kuster,
48 E. San Antonio street. Experience Editor.

[Official Notice.]

Bureau of Information, American Gas Institute.

Office of the Chairman,
Schenectady, N. Y., Aug. 9th, 1911.

To the Members, American Gas Institute: The Committee in charge of the Bureau of Information, having received comparatively few inquiries so far, earnestly urge that all the members of the Institute, having questions or problems which they would desire answered or solved, will please forward them to the Committee at as early a date as possible, as we are anxious to place the answers in the hands of those making the inquiry, getting all these inquiries compiled in time for the report of this Committee at the next annual meeting.

Please do not assume that there are others who are going to bring forward the questions, the information regarding which you would like to have, but take the initiative and write the Committee at once regarding any questions which you would like answered, and we will endeavor to gather as much accurate information as possible on the subject in which you are interested.

M. Webb Offutt,
Gas and Electric Building, Schenectady, N. Y. Chairman.

[Official Notice.]

Twentieth Annual Meeting, Michigan Gas Association.

The Twentieth Annual Meeting of the Michigan Gas Association will be held in Detroit, Mich., September 20, 21 and 22. Headquarters will be the Hotel Pontchartrain. A most interesting programme of papers has been prepared as follows:

"Scrubbing Gas with Tar," by Prof. Alfred H. White, and the Holder of the Scholarship.

"Advertising: A Brief," prepared by C. A. Brownell.

"Experiments in the Taylor System of Shop Practice, by "Ben." M. Ferguson.

"A Purchasing System for a Gas Company," by Albert G. Schroeder.

(a) "Use of Reinforced Concrete in a Gas Works," by H. W. Douglas.

(b) "A Concrete and Wood Condenser House," by E. F. Lloyd.

"Filament Ignition of Gas," by Prof. Howard Lyon.

"Development of the Hotel and Restaurant Gas Appliance Business," by W. F. Clausen.

"Directions for the Recovery, Concentration and Testing of Ammonia," by James A. Brown.

In a city the size of Detroit there is so much of interest to one and not to another, and so little that can be covered in the time allotted, it has been decided to make the entertainment features as elastic as possible to the end that all tastes may be suited.

The central feature of the programme will be two theater parties, one evening to be spent at Detroit's big vaudeville house "The Temple," and the other at whichever of the regular theaters offering the best programme the booking for that week being not yet reported.

Wednesday and Thursday, the 20th and 21st, will each have two business sessions, and it is the intention to hold these on schedule time so as not to make it necessary to interfere with the other arrangements.

At the close of the afternoon sessions, on Wednesday and Thursday, automobile accomodations will be provided for all holders of entertainment tickets, either gentlemen or ladies. Automobiles will be at their disposal, for 2 hours, from 4 to 6 o'clock, to make such a tour of the city and visit such points of interest on the American side of the river as they may desire, dropping them at any hotel or inn desired at 6 o'clock. Parties for the automobile trips should be made up well in advance in order to insure the most congenial company to everyone.

Friday, the 22d, will be devoted entirely to factory inspections, including probably the Packard or the Ford automobile plants, various gas works, stove and appliance factories, special industrial installations, etc., and members desiring to visit any particular point on this day will insure proper accommodations by notifying the secretary well in advance.

For the convenience of those attending, the entertainment programme will contain a complete list of all points of interest, as well as the best places to lunch, dine, etc., together with minute directions for getting there. There are so many places on both sides of the river reachable by automobile, trolley and boats, which are both interesting and beautiful, that a large attendance should be brought out, not only among the members, but of those from a distance as well.

For the convenience of those who may desire to stay over for a side trip Saturday and Sunday, we will give a list of boat schedules to the Flats, Put-in-Bay, Cleveland, Buffalo, Niagara Falls, etc.

We are endeavoring to arrange this entertainment programme so that there will be no temptation to neglect the technical sessions, for we have a programme which will be interesting, important and of value to those in all departments of the gas business.

The entertainment programme became an assured success the moment the committee appointed Messrs. R. Shacklette, L. B. Young and W. S. Blauvelt.

Yours very truly,

Glenn R. Chamberlain, Secretary-Treasurer.

BRIEFLY TOLD.

Concealed Lighting.—There is no more fruitful field for discussion in illuminating matters than that of indirect lighting. The article by Mr. Thomas Morgan, of Manchester, England, is titled, "Concealed Lighting," so it should not be confused with the American term, indirect lighting, and his prediction as to its ultimate supercession of the methods which have been in vogue for ages, certainly does not refer to the American term. While concealed lighting is undoubtedly taking the lead in new installations, it is of the kind known as diffused lighting by means of suitable glassware. Concealed lighting of the "cornice system," or the indirect type has been a failure in the large majority of instances. So that there be no misunderstanding, due to a thoughtless use of descriptive terms, it would be well for us to continue to use the rather inelegant, though expressive terms now in vogue, such as indirect, semi-indirect, cone, diffused and local, for examples of the better types, and unshaded or clear globe offenders for those which are all that the name implies.

CURRENT MENTION—

Well, here's to the worthy son of a heartily-liked father, as per Washington (D. C.) despatches dated the 8th: "Thomas J. O'Brien, Detroit, Mich., Ambassador to Japan, to be Ambassador at Rome, vice Mr. John G. A. Lieshman. The latter-named gentleman goes to the post of Ambassador to Berlin.

The American Meter Company has just issued a well-put together circular-pamphlet, the main object of which is to put before the fraternity a well-worded description of the Hinman Calorimeter, which is finding great favor with the profession. That the instrument is all that its inventor and its makers claim, would seem to be a proven fact, for the standardizing headquarters of the Public Service Commission, State of New York, had this to say respecting the Hinman device: "We have tested the above mentioned calorimeter and, after numerous experiments, to find the most satisfactory method of operation, we are pleased to advise you that the efficiency of this instrument has been found to be 99.5 per cent., or exactly the same as that of the primary standard in our possession."

Mr. B. O. Tippy has resigned the dual position of Vice-President and General Manager of the Grand Rapids (Mich.) Gas Light Company, to become effective the 1st prox. After the date named Mr. Tippy will open an office in Detroit, from which center he will hereafter direct the operations of several gas enterprises in which his friends and himself have control.

The newly organized Shelbyville (Ills.) Gas Company will go on at once with construction work. It is capitalized in $30,000, and its officers are: Directors, W. S. Middlesworth, George D. Chafee, W. H. Craig, S. J. Tenny, "Joe." Young, W. J. Eddy and C. C. Scovill; President, C. C. Scovill; Secretary, W. H. Craig; Treasurer, W. S. Middlesworth; Attorney, G. D. Chafee.

The Kansas City (Mo.) Gas Company has filed notice of an increase in its capital stock, which brings the latter up to 2½ millions dollars, from an initial sum of $2,000. Of the new stock 50 per cent. shall be known as preferred, and 50 per cent. as common stock. This is merely capitalizing under increments already realized, and in no sense implies any change of ownership in Kansas City gas interests, which remain in the control and direction of the U. G. I. Company.

The City Council of Charlottesville, Va., has sanctioned the proposition to issue $26,600 in bonds, the proceeds therefor to be used in bettering the local gas plant, which is under municipal control. This sanction has to be indorsed by public vote, and the date for polling such vote is fixed for the 5th prox.

A spark from a passing locomotive recently set fire to the coal sheds of the Cadillac (Mich.) Gas Light Company, and considerable loss was occasioned thereby—possibly $1,000.

Certain interests in Washington, D. C., are proposing to take over the gas interests of Sumter, S. C., which should be good news for the residents of that lethargic locality. Certainly any change made there could not be other than for the better.

The San Diego (Cal.) Consolidated Gas and Electric Company will extend its main system to and through the bustling settlement known as La Mesa Springs.

Mathew Mather and Elizabeth Mather, as controlling shareholders, have applied for letters incorporating the National Gas Water Heater Company. The concern is capitalized in $25,000, and its headquarters are in Detroit, Mich.

Mrs. Marie A. Tietze has instituted suit in the Denver (Col.) District Court against the Denver Gas and Electric Light Company. She asks for $5,000 damages for the death of her husband (Max Tietze, a butcher), who was killed some time ago while in the act of turning on an electric lamp in his shop. Complainant charges the Company with carelessness in maintaining its high-power transmission lines, through negligently failing to equip the wires carrying the electric current into her house with the necessary reducing devices. In consequence of such neglect, as she declares, her husband, while in the act of turning the current into an ordinary reading lamp, received the full voltage of the main power line, a voltage reaching into the thousands. His death was instantaneous.

The newly-appointed Detroit City Gas Commission is thus composed: Joseph Hughes, Charles F. Murray, H. C. Guthard, Michael O'Connor. It is said that these appointees all favor the municipal control of gas and electric current supplying systems.

Here are the figures respecting the values of the plant and properties of the Des Moines Gas Company, as noted by experts in the determinings before the authorities of that place to put the gas rate at a figure which the proprietors of the Des Moines Gas Company deem confiscatory—the figures:

Expert.	Valuation.
William W. Randolph	$3,138,183
Henry I. Lee	3,261,705
Henry A. Baehr	3,531,491

Ex-U. S. Senator Edward Murphy, Jr., and President of the Troy (N. Y.) Gas Company for many terms, died at his summer house in Elberon, N. J., the morning of the 3d inst. He was in his 75th year, having been born in Troy, December 15, 1836.

Mr. J. J. Boyle has actively assumed the duties of Superintendent of the Hornell and Canisteo (N. Y.) Gas Companies.

An explosion occurred in the purifying division of the plant of the Kentucky Heating Company, South and Ormsby streets, Louisville, Ky., the night of August 3d. The Louisville *Times* says the damage done amounted to several thousand dollars.

(*Continued from page* 103.)

Fig. 1

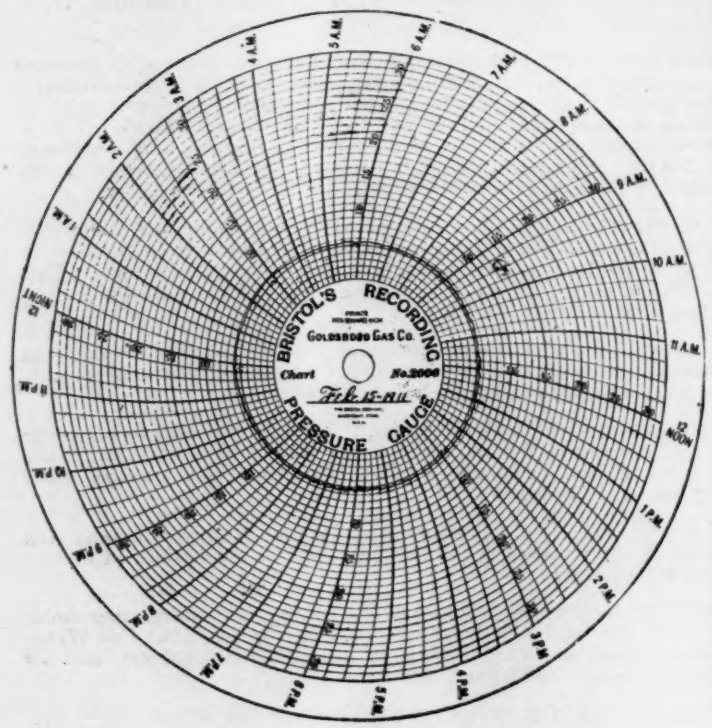


Fig. 2.

24 hours. As you will note, this chart was taken from a Bristol gauge, located in the foreman's room at the plant.

About 3 feet from the outlet of the governor the meter is placed, the meter being of the Wylie proportional type, made for measuring gas under pressure. The meter and governor are so connected that both, or either, can be by-passed when necessary.

We have 9 miles of main running in size from 1¼ inches to 3 inches, all of wrought steel pipe. The main, or principal trunk, line is 3 inches in size, then reduced to 2 inches, all lateral lines being of 1¼ inches to 1¼ inches in size. This main was laid in the roadway 30 inches from the curb and 37 inches deep, no attention being paid to grade, further than to follow the curb line as established by the City Engineer. Dresser couplings and expansion joints were placed at regular intervals along the line. Valves are placed at certain points on the main system for cutting off any section for repairs, etc. These valves are placed in brick manholes, so they can be quickly and easily reached. Mains were all tested to 45 pounds pressure as they were laid, about 1 block being tested at a time.

Our testing apparatus consisted of a gas engine and compressor mounted on wheels, using an ordinary kitchen boiler tank strapped alongside for air storage, carrying 85 pounds pressure in same, so that when ready to make tests of pipe line we would be able to instantly have a good start from the pressure in the tank. In tapping for service connections we use the Mueller saddle with ½ inch opening, tapping through corporation cock; ½ inch services are run in practically every case.

Individual house regulators are placed on each service next to the meter. These regulators are of the Reynolds type and have mercury seals. From the vent a small pipe is run to the outside of house so that, in the event of seal blowing, the escaping gas will pas out into the open air. No trouble of this kind, however, has come to us.

Practically all condensation from the gas takes place in the compression tanks. No drips are placed on the main system and no evidence of water or oil has been found when tapping mains. The question of decreased candle power by reason of compressing the gas has been discussed several times, but the medium carried by us has not affected the candle power so that we could detect any decrease with the naked eye. We filled the gas tanks on some passenger cars for the Norfolk and Southern Railway during the holiday season last winter, pumping the gas up to a pressure of 155 pounds, and the cars were well lighted, even though the gas was not made of a higher candle power for this special use.

The plan of operating the plant is as follows: The gas maker is on duty from 6 A.M. to 6 P.M., his helper coming on at 12 M. and stopping at midnight. No one is at the plant for the 6 hours from midnight until 6 A.M. Gas is made during the afternoon while both men are there. The compressor is operated by steam, the tanks are filled to 35 pounds prounds pressure while the gas is being made, and the fire under boiler is banked and steam raised again when pressure in tanks has dropped to 7½ pounds. About 170 pounds coal are used each time the compressor is operated. We have not figured on the cost of operating a gas engine for running the compressor, so it might be an advantage to have one installed for running the compressor after the steam had gone down on the boiler. The advantages in establiahing a high pressure plant are as follows:

1. The initial cost for construction work is less than for a low pressure plant.

2. Thinly settled districts can be cheaply reached; therefore, gas can be placed before a larger portion of the population at once than if low pressure is used.

3. No complaint should arise from a lack of pressure at any time.

4. All fuel appliances work perfectly as the proper regulation of the quantity of gas can be secured.

5. Gas arc lamps give perfect service regardless of the inferior pipes used often in buildings.

On the other hand, we have to consider the extra cost of pumping, also the shorter life of wrought pipe in a system of this kind. If the soil is free from acid, wrought iron pipe, especially if given a good coating of proper material, will last indefinitely. From my observation of this subject, it is my candid opinion that high pressure gas distribution solves the problem of gas supply for the medium sized cities of our country.

The Inspection of Gas Consumers and Gas Appliances.

[Prepared by MR. F. G. DEAN, for the Montgomery Meeting, Southern Gas Association.]

I wish I were the possessor of that seventh sense thing—the power which would make it possible for me to look into the future. I wouldn't care to look very far ahead; say, just about 20 minutes. It will take me about that time to read this paper, and I would like to know now, before I start, what's going to happen to me after I finish, for I am just a bit fearsome as to the result. While nothing personal is meant in my paper, some of the things I shall say may get under the skin of some of our friends present, and may hurt a bit; but console yourself with the fact that every good cause must have its sufferers. It's just like taking medicine, fellows—mighty mean going down; but you feel a whole lot better after getting it into your system. I certainly hope it will work out so in this case, and I sincerely trust that everyone of my audience will feel the good effects before I finish, for then they will feel more inclined to deal leniently with me. Borrowing a well known expression, I might say, "Cheer up, for the worst is yet to come."

Having but one customer in a city, I must of necessity discuss with the gas managers many topics other than my particular line. The subject in which they are most interested is their own work, and that also is a subject I desire to study in detail, as it enables me to aid other managers in their experiments. My travels cover 13 States, and I learn many details of men and methods in the Southern gas industry. In my line of work I devote my time to the study of gas sales, which means sales of gas appliances. In this research I was forced to learn the exact conditions under which gas is delivered and consumed, as well as the experience and opinions of consumers.

Complaints are common things around the gas office; they are as numerous as fleas on a mangy dog's back. The gas manager becomes

accustomed to them—that is, the complaints, not the fleas; and it is on account of this, as well as the inconsistency of many of them, that he sometimes grows a little careless about their proper attention. It is wrong for you gas men to fall into this habit. Never trade on the fact that yours is the only gas company in the town, or forget that you are without competition; but, on the contrary, let that fact urge you all the more to do your level best to satisfy every dissatisfied consumer. Even though the complaint is a foolish one, send a gentleman who knows how and when to talk and when to keep still. He will treat it as a business opportunity and get business or advertising out of it. I believe they call that tact, and tact is necessary to-day in every business, especially the gas business.

The principal causes for complaint in the gas business are: Poor gas; too small mains; dead ends; lack of pressure; uneven pressure; trapped house runs; too small services; trapped services; too small housepiping; lack of drips; too small meters; inattention to meters; careless meter reading; impudent complaint clerks and cashiers; ignorant, careless fitters; foremen who reduce cost per order, and not orders; too low estimates of cost by solicitors to consumers; cheap gas ranges sold to those who know no better; defective appliances; rust of sheet steel; lack of, and careless inspection. What a list! And there are many others! Is there a cause named not removable? Who is responsible? Not the manager (?), he has no money; not the directors, they don't realize conditions, and there's a reason. The stockholders hear little about conditions or dividends. The two most dangerous and expensive causes for complaints are servants and housekeepers. Ignorant in the use and care of all domestic gas appliances, is it their fault?

To become equipped for intelligent discussion of these subjects, I offered my services for a week in each case to seven Southern managers as "Inspector of Gas Consumers and Gas Appliances." I served them in that capacity, inspected everything above ground used for gas, and learned many causes, effects and remedies. In answer to a suggestion, a combination President said: "This town is not big enough to support a sales department or even a gas salesman. We had a solicitor once who would sell 3 or 4 ranges one day and then play pool 2 or 3 days; so we let him go. No more for us." I asked him if he had secured the electric franchise in his town, built the power house, bought cars, hired his expert superintendent, motormen and conductors, opened an office with a telephone downtown, and then told people that any time they wanted to ride to or from their homes they could telephone to the office or station and a car would be sent out for them.

He asked me what kind of nonsense I was talking. I then asked if his motormen and conductors were not in reality solicitors for the sale of transportation, with regular trips up and down the line, demonstrating how pleasant and easy it was to ride on the cars for business or pleasure, and if they were not securing the business and the stockholders' dividends.

I then called his attention to the fact that his gas company's stock, bonds, etc., amounted to a total of $300,000. The works were as fine as any; they had a combination office with a telephone in the business section of the town, also a telephone at the works. A part of the people in town knew that they could go to the office and stand around until the clerks finished reading the papers or discussing the ball game, then have an application shoved at them and told they must sign that before they could have a meter set. One range, evidently not dusted for months, was on display for sale.

He admitted I had made a full statement of the efforts then being made to sell gas, the sole product of a $300,000 manufacturing plant, that had never earned enough to more than pay interest on its bonds; however, he had never thought of it in just that way. I told Mr. President my busy season was over, and as the general manager was away, and would not be home for a week, I would await his return. In the meantime, if he desired, I was willing to spend my time inspecting and adjusting as many consumers and appliances as possible during the week. It is needless to say he "desired" it, and turned over his employees and the columns of the local press for my use. Announcements were made in all the papers that a special representative would call on as many consumers as possible during the week to inspect and adjust all gas burning devices; also, that as he could not call on all consumers, those who were having troubles of any kind would receive prompt attention by reporting the same by telephone. The next morning, with a meter book, a set of reamers, ranging in size from 7 to 70-gauge, a screwdriver and a pair of pliers, I started out as an "Inspector of Gas Consumers and Gas Appliances."

At the first house I called the lady said: "Yes, I read about you in the morning paper, and you certainly have started in at the right place. For 3 months I have been trying to get them to send here and see why I couldn't get enough gas to cook with. Yesterday they sent what they said was their best fitter, who, after taking down and replacing pipes for 2 hours, went away and said he would return to-day and 'blow out the service,' whatever that is." She accompanied me to the kitchen, and it was a "sure-nuff" case of no gas. After cleaning the burners, I removed all the cocks, which I found were choked with gas products, cleaned them carefully, and after readjustment the range was in as perfect working order as the day it was first installed, with an ample supply of gas.

All this time (20 minutes) I was making suggestions as to the care of gas ranges, the use of water heaters, cake griddles, toasters, waffle irons and mantle burners (she used electric light, although the house was piped for gas). She thanked me and said: "I don't understand why the gas company sent a man who didn't even know what was the matter with the range. You knew what was the matter at a glance, and fixed it in a few minutes."

In a boarding house, where gas was used for water heating and lighting, there were two inverted burners of the "Dollar Complete" type, but no mantles. The lady said no one in town sold them. A young man who boarded with her used to get them for her from the druggist who employed him, but his employer is now using gasoline, which does not require the same mantles. Every fixture in the house was supplied with aluminum or lava tips in their usual bad condition. Those in halls and sleeping rooms I displaced with the best 4 foot, open flame burners made, and 6-foot jets elsewhere. The kitchen was detached and about 18 feet from the meter. There was a gas range out in the back yard.

The lady said where she formerly lived she used $6 to $8 worth of gas per month for lighting, cooking and water heating, but when she moved to her present home, about 2 years before, the gas company wanted her to pay $6 for reconnection, which she refused, and had cooked with wood ever since. She would like to cook with gas and buy a tank heater, as the instantaneous heater in the bath room was always out of order. However, she would not pay the Gas Company $6 for the 18 feet of pipe between the bath room and kitchen, since they had run over 100 feet free to connect a hot-plate for one of her neighbors who didn't use it more than once a week.

At the next place a fine-looking, grey-haired lady came to the door. I told her I was from the gas company and had come to inspect, and if necessary, adjust the newly-installed range. She thought it was strange that they would send a man for that or any purpose, as she had not complained and had never heard of their sending out a man to fix anything until complaints had been made at the office half a a dozen times, and then the manager or president appealed to. Was I really from the gas company? I assured her I was, and she informed me the range was perfectly satisfactory and did not need inspecting. I suggested that while it might be satisfactory, I was in that line of work and often discovered some defect that consumers did not. That touched her pride. She said she had used a gas range for 8 years and guessed she knew when the range was right. Furthermore, if there was anything wrong she would let the rascals know it quick enough and hound them until they made it right; besides, she had bread in the oven and I couldn't inspect it then anyway.

It was up to me to be a diplomat as well as an inspector, so I at once became the special representative of the manager, trying to learn exact conditions with a view to making recommendations leading to a betterment of the service throughout the city. This and more talk of the same kind won her escort to the kitchen. It was easy to see this lady was not one to be "taught." The only way to give her the information about the use of gas ranges, which our few minutes' talk had shown me she lacked, was to describe different ways people did things and then my way of doing the same thing, with my reasons. I first readjusted a circulating water heater which I found was consuming too much gas, and without a flue connection was producing a disagreeable odor. She was baking with the back oven burner burning in the mixer. The mixer of one of the back top burners was closed, and, of course, it burned a long, yellow flame. The two front burners were reversed, resulting in too much gas for the small one and too small a supply for the large one. The small burner produced yellow tips while the large burner flashed back every time a match was touched to it, the mixer being wide open.

Without commenting on the fact that I was finding serious conditions, while I worked I talked of troubles I had found elsewhere. I wanted to know the position of her bread in the oven, so, quick as

a flash, I opened the oven door an inch and, as I imagined, it was on the bottom. She nearly fainted when I opened the door, and screamed for me to stop as I would ruin the bread. I explained that I had no idea of opening the oven door, and was merely testing the door catch.

I described how a lady in another part of town baked bread and biscuit on the bottom of the oven, and was obliged to change it to the broiler to brown the top. After explaining the difference in the flue construction of wood and gas ranges, I told her there was a proper slide for the oven racks and when she was through with the oven I would show her where the best results were usually obtained with loaf bread and biscuit; but in most cases if a cook would experiment she would find just the right position to bake everything top and bottom alike without changing and with less gas. About this time she took her bread from the oven, and without comment, placed it in the broiler to brown.

When asked if her pots and pans ever smoked, she replied: "Of course! all gas ranges do that." I saw a new white enamel pan on the table, which I filled with water and tried to smoke over each of the top burners. This, of course, could not be done. I then closed a mixer to demonstrate what caused the smoke, and told her that when yellow tips appeared on any burner readjustment was necessary. When the oven was cool enough, I took out the back burner and orifice and reamed it slightly from the inside, then adjusted both burners and called her attention to the slides and flues on the sides.

When I was through she invited me to the bath room to wash. This was sorely needed, as it was late in June and "some hot." The madam then apologized for her very impertinent (as she called it) reception of me, and said it was a pity the Company did not employ gentlemen regularly to instruct their patrons, as she had cooked with gas for 8 years, but had learned more in the short time I had been there than she ever knew before.

These are 3 of the 100-or so inspections I made in that city. I kept memoranda of conditions as I found and left them, and some of the remarks of the consumers on my arrival and departure were certainly illustrative of the necessity for such work.

On the return of the general manager I had a conference with him and the president, and made a report in detail. Many of the parties I called on were personally known to both, They were amazed at the conditions, and asked where they could get the right kind of a sales' manager. I mentioned several, one of whom was in a nearby city and could be reached by 'phone. At their request the 4 of us held a conference the following evening.

They closed the deal quickly, and while I suggested this man only for sales' manager, I called attention to the fact that as their superintendent had always been the "whole show," there was sure to be friction between them with the usual delays, added expense and loss of business resulting, unless the shop department was placed under him. This department taken from the superintendent would leave him few duties, so they decided to make the new man manager of the gas department. The past year shows reduced cost at the burner, an increase of 25 per cent. in gas sales, and the first net profit in the history of the Company.

In another city a friend of the general manager, who had always been a monthly kicker, was made to understand her range and the wasting of gas so clearly that she took the trouble to go to the office to thank the manager and apologize for her many complaints, which she told him would have been avoided had she understood the simple thing learned from his special representative.

In answer to a leak complaint I found every joint gastight, and every orifice in the range reamed from the outside, evidently with the butt end of a file, and no range burner could consume that supply with a kettle only 1¼-inch above. In more cases than one would think, the pilot cock was clogged and not supplying enough gas to light the oven burners. Had the manager been doing the inspecting and adjusting in a few such cases, he would have stopped buying ranges having pilots bolted into position, because invariably it meant cutting the bolt and a new one to replace it; also, more tools than a special representrtive could carry concealed in his pocket and be presentable at the front door. If any wide-awake manager will follow a good man in that work for a few days, he will never buy a range with a bolt, piu, wire or clip to hold pilot burners, oven, tap or simmering burners in position; nor one where asbestos, loose-cap or cemented burners, needle orifices, needle valves, or stamped metal air shutters are used. They create absolutely unnecessary delays, hence maintenance expense.

I am not saying this to boom or knock any particular make of range. It is because I have ruined clothing, skinned nearly every exposed part of my body, and broken at least 1 of the 10 commandments in trying to adjust trouble without carrying a machine shop and a force of machinists with me. It is the man-on-the-job who is talking to you now, and if you could realize the ignorance of your complaint men in adjustments, and your consumers in the use of gas appliances, this line of work as an dividend producer would be adopted at once. The great trouble with many gas managers is that they have lost sight of their real business in the sale of gas appliances. What good are these installations unless the consumers know how to use them and are satisfied with their continuous use?

Many have said to me: "The best fitter we have is on complaint work." Yet I will wager a good hat that not 1 complaint man in 10 knows how many feet of gas per hour should be burned in either burner of any gas range; nor can they tell within 10 or 20 feet, on looking at a burner in operation, how much it is consuming. I have asked dozens of them these questions, and only found one who could answer correctly.

Have your fitters carry a decent set of reamers and a punch to increase or decrease the size of an orifice? Do your fitters know the necessary size of orifice to burn 10, 15 or 20 feet of gas per hour under 2, 3, 4, or any given pressure under average conditions? Do your sales' manager or salesmen know the answer? Do you know? I will be pleased to supply a limited number of charts giving this information.

I once saw a gas manager and a well known "Domestic Science" teacher testing 2 makes of gas ranges. No attention at all had been paid to adjustment except to get a blue flame. One of them was reamed for 2 inches pressure and was being tested under 4½, You can imagine the consumption and results.

I heard a manager say a certain water heater was no good because it gave out a fierce odor. Sure enough, it did. In fact the flame was coming out of the top. It was built for 50 feet of gas and was passing, not burning, 110 feet per hour. Was it a miserable water heater? Or, is it possible it could have been a fault of the manager, sales' manager or fitter? When such things can and do occur right under your nose in the salesroom, is it strange that consumers absolutely ignorant in the use of gas ranges or water heaters do not get good service, and do not use the appliances your sales' department spent so much time and labor to sell? Is it strange that your ignorant or careless employees are constantly breeding kickers against the gas company? It requires a man of more than ordinary tact to convince a housewife without giving offense that cleaning with daily care of the gas range is an essential part of the daily work. The right man could mold public opinion and change a "kicker" to a "boomer," while a woman in dealing with women would be merely an instructor, welcomed in some cases of new installations where ignorance is admitted and more thorough instruction cannot then be absorbed. If such men are employed to visit and confer with all consumers, say twice a year, the work of complaint men in 2 years' time would be reduced to "no gas" complaints, sales per meter increased and plenty of "shure-nuff" prospects supplied to keep sales' departments "doing things."

In talking with managers on this subject I have had them say: "Yes, that's a good idea; but you can't get such men." You can get them; but they must be better men than the average solicitor and must be better paid. The right man in this line of work will sell more gas and save more money by reducing complaints and making friends for the much-abused company, than any 2 solicitors and a complaint man combined. If it is easy to train this type of man in the mechanical requirements of the work, but to make a diplomat of 1 fitter out of 100 or the average solicitor—well, I have seen it tried, and, as a result, the whole plan condemned. It just can't be done.

I do not affirm that there are not solicitors who can be trained to this line of work, and most of them can inspect and in some cases adjust. Nor do I say that complaint men are always incompetent to make adjustments, or that women as instructors for beginners are not necessary. In their line, they are important specialists. The work of the sales' department has resulted in not only the education of the consumer, but it has developed a field much broader in its educational work than that covered by salesmen alone, it requires a broad gauge man; at the same time, one who is not afraid of work or of soiling his hands, and yet can keep himself always presentable.

In my opinion, the most important and far-reaching subject for your consideration to day is the *proper* inspection and adjustment of gas consumers; incidentally, gas appliances, a work to be performed not by fitters, inspectors or service supervisors, but by a special representative of the general manager.

Mine-Rescue Breathing Apparatus.

Through the rapid development of mine-rescue work in the United States in the last 2 years, and the increasing use of the mine breathing apparatus, many applications have been made to the Federal Bureau of Mines for information concerning this apparatus and how it should be properly used. Responding thereto the Bureau has issued Miners' Circular No. 4, on "The Use and Care of Mine-Rescue Breathing Apparatus," by Mr. James W. Paul, who has general charge of the rescue work. The author makes the statement that the use of such apparatus for rescue work in mines is no longer an experiment, but has become an important factor in lessening loss of life and property from fires and explosions.

The circular describes the various types of apparatus used by the Bureau and furnishes careful instruction as to the care this apparatus should receive when not in use. Then the author thus passes upon the qualifications of rescue men at the mines: "Mine men 22 to 45 years old, in good physical condition, are temperate in their habits, and naturally calm and deliberate, are best suited for mine-rescue work. Before a man undergoes training in the use of breathing apparatus, he should be examined by a physician to ascertain his physical condition, especially the action of his heart and lungs and any defects of the nose or throat. Unless a man has a physician's certificate, stating that his physical condition is good, he should not be permitted to take rescue training nor to attempt rescue work in a mine.

"A rescue party should not have less than 5, and better not less than 6 members. Only such persons should be allowed to join the party as have already been trained in the use of the apparatus, are equipped with it in good order and have agreed to follow the directions of the leader, who must have full charge. While working in unbreathable gases within a mine the men should keep close to one another and not separate under any condition.

"To be efficient and successful a party must take every precaution for its own safety. If one person in a party faints or receives an injury he becomes a burden instead of a help, for the entire party must at once conduct him to the surface or to fresh air. One or two stretchers should always be at hand.

"A relief station or base of operations should be established at the end of the good air, and a relief crew with knapsacks should be stationed there, ready to put on their apparatus and start at a moment's notice. A patrol of all brattice and doors leading up to the relief station should be maintained to protect the relief crew from harm.

"At each large mine there should be at least 4 crews (2 outside and 2 inside) each of 6 men, including a captain and a lieutenant, and these crews should have practice once a week. While working in dense smoke the members of a crew should hold a rope which leads to fresh air. In case of total failure of an apparatus to supply breathable air, the wearer of the apparatus can throw away all parts but the oxygen cylinder, and breathe from the cylinder through his mouth while endeavoring to reach fresh air with the rest of the crew. Apparatus for giving oxygen to one who has been overcome with gases is an escential part of the equipment of a rescue party.

"A telephone helmet is a convenience for shaft work, and its presence lends much confidence to a rescue party. Electric and safety lamps, gas analysis apparatus, thermometers, pocket compass, and map of the mine are necessary parts of the equipment. At each training station a record should be kept showing the work done by the men and the difficulties encountered. A record of each apparatus should be kept also. If an apparatus fails to give proper service it should be subjected to the regular tests unless some injury is seen by inspection.

"The United States Bureau of Mines has established a regular course of training in the use of mine-rescue breathing apparatus, which training is designed to give miners or other persons connected with mining, a knowledge of breathing apparatus in general, and a confident familiarity with those types of apparatus that are most apt to be used in this country.

"The purpose of the Bureau of Mines, in establishing this system of training, is to facilitate investigative work within mines in which disasters have occurred, and to make mine owners and miners acquainted with the value of breathing apparatus for rescue operations after mine disasters. It is hoped that, as a result of this work by the Federal Government in the near future, men familiar with such apparatus will be scattered throughout the coal mining centers of the country, and be available on short notice to assist in rescue operations. After a disaster, valuable time is often lost in training men at the mine before rescue parties can be organized. Furthermore, a man cannot work efficiently unless he has thorough confidence in the apparatus. To give a man this confidence, the course of training has been planned in such a way that he must do work in poisonous or unbreathable gases for periods of 1 and 2 hours at a time."

Correspondence.

[The JOURNAL is not responsible for the opinions expressed by correspondents.]

Ho! The Baseball Men!

BALTIMORE, MD., August 9, 1911.

Dear JOURNAB: Rival baseball teams of three lighting companies played a double-header at Oriole Park, Baltimore, on July 29th. The White Sox of the Consolidated Gas, Electric Light and Power Company, tackled first the crack nine of the Edison Electric Illuminatiug Company, of Brooklyn. The struggle lasted for 12 innings, and at its close the White Sox sallied forth again to do battle with the fast squad of the United Gas Improvement Company, of Philadelphia.

Brooklyn took the first game by a score of 3 to 2, and Baltimore won the second by a score of 3 to 1, before 2,000 spectators.

Manager Lafferty brought the Edison squad from Brooklyn, and when Philadelphia was reached, Manager Gallagher and the U.G.I. nine boarded the train. Luncheon was served en route, and at Baltimore the nines were met by the local players and a bus which took them directly to the grounds. A full brass band was on hand during both games, and the Baltimore team had as a mascot a diminutive darkey of deep ebony hue who cavorted on a more or less white mule. He failed to have any effect on the Brooklyn players, but cast some sort of a spell over Philadelphia.

First Row, Sitting on Ground, Brooklyn Edison; Second Row, Gas and Electric of Baltimore; Third Row, U. G. I., of Philadelphia.

Both games were fine examples of brilliant ball playing. Zinzer pitched a masterful game for Brooklyn, growing better as the 12 innings proceeded. "Stub" Brown held the visitors down and the contest was in doubt until Manley landed one over the fence for a home run. The play was replete with thrilling incidents. In the eleventh inning with the score tied, Brookly had 3 on the bases and no hands out. The batter failed to connect properly with one of "Stub" Brown's curves and placed a hot one in the pitcher's hands. Baltimore caught the runner at the home plate, and then a fine throw to third base completed the double play. The next man fanned. In the twelfth inning Brooklyn took the lead by 1 run, and Zinzer, backed up by brilliant fielding, succeeded in holding the White Sox down.

The game with Philadelphia was the sixth in the series being played between the U. G. I. and the Gas and Electric White Sox. The game score stood 3 to 2 in Phila delphia's favor. This fact and the effect of having lost the game with Brooklyn "gingered up" the Baltimore boys, and the result of the second game of the day was, Baltimore 3, Philadelphia 1.

The Quakers played brilliantly, and both Donohue for the U. G. I., and Smith for Baltimore, pitched in masterly style. The game score was thus tied. After the games the players were entertained at dinner.

The Baltimore team will play Philadelphia again this season on the U. G. I. grounds, and a return game is baing arranged with Brooklyn.

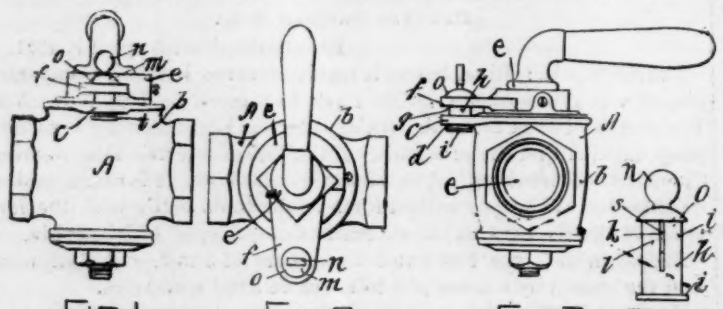
Yours truly, A. W. G.

THE Schnitt Manufacturing Company has been incorporated to manufacture gas stoves, gas ovens, gas engines and other gas appliances. It is capitalized in $100,000, and its headquarters are in North Bergen, N. J.

Management & Commercial Methods.

THE CATHELS SEALING DEVICE FOR GAS METERS.—On May 9th last United States Letters Patent were granted to Mr. Edmund Cathels, of Providence, R. I., for a device outlined in the heading. In describing his device and invention Mr. Cathels says:

Referring to the drawings, Fig. 1 represents the side view of a stopcock to which the invention is applied. Fig. 2 represents a top view of the same. Figs. 3 and 4 represent respectively top and side views, and Fig. 5 is a side view of the device. Fig. 6 is a side view, as of Fig. 4, and Fig. 7 is a section taken in line 7, 7, of Fig. 6. An end view of the clasping member is reproduced in Fig. 8, while Fig. 9 is a side view of the keypiece. Fig. 10 is an end view of the same.



In the drawing, *A* represents a stopcock, the barrel *b* of which is provided with the projecting arm *c*, having a perforation at *d*. The valve *e* of the stopcock is also provided with a projecting arm *f*, having a perforation *g*, the said perforations *d* and *g* being adapted to receive the clasping member *h* of the device, the said member being made in hollow cylinder form, with an outwardly turned flange *i* at one end, and an inwardly turned flange *j* at the other, and also provided with the diametrically slit *k*, whereby the slides *l l* of the said clasping member are made resilient. The keypiece *m* is provided with a head *n*, a flange *o*, and a conical knob *p*, which when forced through the opening *q* in the resilient end of the clasping member *h* and into the enlarged chamber *r*, serves to lock the said parts together by means of the intervening shoulder *s*, as shown in Fig. 5.

The clasping member *h* may be made of steel or other metal, and the keypiece *m* may be made of cast iron or glass; and in using the device, the conical knob *p* of the keypiece *j* is to be pressed into the opening *g*, the tapering sides of the said conical knob serving to force the sides *l*, *l*, of the clasping member apart to allow the entrance of the knob *p* into the chamber *r* to be held therein by the inward springing of the said sides; and in this case, the cast iron or glass keypiece, cannot be withdrawn without being broken and thus revealing the fact that the seal has been tampered with.

If two or more articles of any kind that have holes of a larger diameter than the outside diameter of the clasping member, but of a smaller diameter than the outwardly extending flange *i*, are so arranged that the said clasping member can be placed in the said holes and have the fragile keypiece *m*, inserted into the chamber of the clasping member, they will be sealed to each other so that their removal from each other would be detected. The method of breaking the seal when desired, is to break off the outer portion of the keypiece at the weak part or neck at the back of the knob.

Publications.

[All Publications, Catalogues, etc., mentioned below, are kept in our office for the convenience of our patrons.]

Chicago, Ills., Lighting Department Annual Report.—The annual report covering the year 1910, of the Department of Electricity, Chicago, Ills., contains data, etc., concerning the municipal operation of the electric street lamps and electric wiring and gas inspection. The department was organized in 1898 and now has 400 employees. The cost of the 12,336 city arc lamps is given as $38.16 per annum, and of the 893 rented arcs as $75. The 5,426 open flame and 11,990 mantle gas lamps are maintained by the department, and the costs including gas, are given as $15.41 and $18.91 per annum, respectively. The 7,021 gasoline lamps are supplied under contract at $26.40 per annum.

Items of Interest
FROM VARIOUS LOCALITIES.

DURING the year 1910, the number of preferred shareholders in the Massachusetts Gas Companies was 6,623, as against 6,486 two years ago. Of these 426 are employees, who have thus signally benefitted themselves through the working of the profit sharing plan. In 1911 the common stock was divided by or in the possession of 3,725 holders, the number for the corresponding period having been 3,180. The average holding of the common amounted to 67 for each investor. In the like period (the figures deal with the 12 months ended June 30) the total shareholders were in the ratio of 6 common to 5 preferred.

MR. NORTON R. MILNE, who has been in the North Main street office of the Fall River (Mass.) Gas Company since 1897, has been appointed to a responsible position on the staff of the Haverhill (Mass.) Gas Company.

THE Village Board of Trustees, Amityville, Long Island, N. Y., some days ago granted an extension of time to the South Shore Gas Company wherein to connect the main system with that of the parent Company at Babylon. Under the extended agreement the Company must have its mains through Oak street to Broadway by October 1st, from the Long Island railroad tracks, south to Main street on Broadway and Park avenue by November 1st, and over the balance of the 3 miles required under the franchise by June 1, 1912. We understand that promoter O'Dell no longer has any interest whatsoever in the Company.

SUPERINTENDENT DUGGAN reports that the betterments now going on in connection with the Penn Central Light and Power Company's plant at Huntington, Pa., will be completed easily in time for the winter demands. He usually makes good, too.

THE plant that is to be erected for the supply of gas to Shelbyville, Ills., is to be of the type exploited by the American Construction Company, of Newton, Ia., of which concern C. I. Tenney, of Des Moines, Ia., is President. Well; the Shelbyville people will in due time discover the difference between tweedledum and tweedledee, with reference to processes of gas manufacturing and distributing.

THE New Orleans *Picayune* of recent date said: "So far there have been no bids made for supplying gas to St. Charles, La., and the prospects are that no one will ask for a franchise at the present time. Charles F. Forder, who first agitated the matter, failed to put in a bid or to show up at the last meeting of the Council, and no other bidders have put in an appearance. The city may re-advertise the franchises, but the probabilities are that no further action will be taken."

THE J. J. Volrath Manufacturing Company, the plant of which will be operated by means of a gas producer system, is being constructed and equipped at Sheboygan, Wis., by the Milwaukee Bridge and Iron Company.

ADVICES from Altoona, Pa., are to the effect that, on the 22d inst., an application will be made to the Governor for a charter under which it is proposed to create the Altoona Gas Light and Fuel Company. The incorporators are Messrs. W. M. Canby, R. W. Mott, J. E. Mape, B. F. Pepper, W. H. Bodine, Jr., and George W. Pepper.

"B. W.," writing from Bangor, Me., under date of the 4th inst., says: "Mr. C. Rodman Stull assumed last Monday the responsibilities going with the position of General Manager to the Bangor Gas Light Company. He succeeded Mr. Vernon K. Gould, who for several years has managed that corporation's business wisely and well. As a mark of their esteem for his fairness in his treatment of them, the employees of the Company presented their former Manager with a handsome gold timepiece. Mr. Stull comes from Coatesville, Pa., in which place he served the Gas Company as Manager."

MR. WILLIAM M. STEWART, Superintendent of the gas division of the Massachusetts Lighting Companies properties in North Adams, Adams and Williamstown, Mass., has resigned that service to engage with an electrical contracting firm of Troy, N. Y. The resignation becomes effective the 16th inst. The correspondent who informed us of this change also inclosed the following from the North Adams *Transcript*: "Nine years ago Mr. Stewart came from Troy, where he was employed by the concern in which he now takes an interest, to become Superintendent of the old Adams Gas Light Company.

When the property was bought by the Massachusetts Lighting Companies, in connection with the North Adams and Williamstown Companies, Mr. Stewart was placed in charge of the gas business of all three concerns. He moved his family to this city, where he has lived for the past year and a half. Mr. Stewart has many friends in this city and Adams who will wish him success in his new venture."

MR. FRANK R. WILLEY, who recently resigned as Local Manager of the Uuited Gas and Electric Company, of New Albany, Ind., and also of the Louisville and Southern Indiana Traction Company, accompanied by his family, left for Pomona, Cal., last Saturday.

"THE celebrated W. W. Scranton, President of the Scranton (Pa.) Gas and Water Company, accompanied by his 'certainly better half,' returned some days ago to Scranton from a 2 month's trip abroad, taken chiefly for the purpose of experiencing the 'cure' at Carlsbad. He evidently did over there quite like he does at home, for he told a reporter of the Scranton *Times* that he didn't go over for pleasure. 'I went to take the cure at Carlsbad, and made a business of it. * * * Its all right to take a trip of that sort; but its good to be back in your home town; and a man is never as comfortable anywhere else than he is when one is in own house.' The finish of this caused some of his friends here to speculate as to whether or not the Carlsbad beds were sufficiently lengthy!"

THE cottagers at Cosey Beach, Conn., have importuned President Nettleton, of the New Haven Gas Light Company, to extend the piping system to their district. They'll likely have to wait until 1912, however.

THE Union Electric Company, of Franklin, Mass., has been sold to Messrs. C. D. Parker & Co., of Boston, presumably for final account to the Massachusetts Lighting Companies. The purchasers have also acquired the properties of the Foxboro (Mass.) Electric Company, likely for same account.

A SPECIAL meeting of the shareholders in the Worcester (Mass.) Gas Light Company will be held in its main offices at 10:30, Wednesday morning next. At that place and time the shareholders will take action respecting the permission recently granted by the Board of Gas and Electric Light Commissioners for an issue of $200,000 additional new stock.

THE daily papers for the Boston (Mass.) district, dated the 5th inst., advise that Mr. J. L. Richards, President of the Boston Consolidated Gas Company, has submitted to the Board of Gas and Electric Light Commissioners a contract between his Company and the East Boston Gas Company, revised in accordance with certain suggestions made by Chairman Barker, of the Commission. The instrument provides that the Consolidated Company shall supply the East Boston Company with gas not in excess of 30,000,000 cubic feet per month, at the rate of 40 cents per 1,000 cubic feet, the East Boston concern to pay in addition $3,500 per annum, or 10 per cent. on cost of mains buried in the Chelsea district by the Consolidated Company. Meanwhile, the works of the East Boston Company are to be operated at full capacity.

THE proprietors of the United Gas and Electric Company, of New Albany, Ind., have concluded (at least for the present) not to appoint a local Manager, the duties of that station meanwhile to be taken over by the Company's Treasurer, Mr. R. W. Waite. Mr. Guy F. Dailey, Chief Bookkeeper, will supervise the office force.

THE Riter Conley Company has been awarded the contract for the construction of a new holder, to store natural gas only, by the Allegheny Heating Company, of Pittsburgh, Pa. The holder will be 226 feet in diameter by 208 feet in height, and will have a capacity of six millions cubic feet. It is to be located at the junction of Rebecca street and South avenue, and its construction will call for the use of 5,000 tons of steel. This, we believe, will be the largest holder ever constructed to retain natural gas; the holder now in use by the Philadelphia Company in Pittsburgh having 20 per cent. lesser capacity. The vessel is to be completed by the time set - that is a certainty with Mr. Osborne on the job – December 1st.

THE Napoleon Gas Company, to supply gas to those who are centered in and about the similarly named district of Ohio, has been incorporated by Messrs. Wm. T. Morris, Bernard Shaw, Morris Tracy, Wm. T. Morris and Joseph A. Sloan. This is evidently a proposition which may be traced to Penn Yan, N. Y. It is capitalized in $25,000.

BY a decision handed down the close of last month the New Jersey State Board of Public Utilities has ordered the Consolidated Gas Company, of Long Branch, N. J., to put its selling rates—from Sept. 1st—in accordance with the following schedule: First 10,000 cubic feet per month, $1.35 per 1,000; for the next 40,000 cubic feet, $1.25; all over 50,000 cubic feet, $1.10. On electric account the new schedule provides: First 200 kilowatts, per month, 15 cents; next 200, 12 cents; all over 400, 10 cents. The centers affected are: Long Branch, Allen hurst, Asbury Park, Bradley Beach, Sea Bright, Ocean, Neptune, Shrewsbury, Eatontown, Oceanport, Deal, Monmouth Beach, Red Bank, Little Silver, Fair Haven and West Long Branch. It is said that these concessions will make a difference, at the outset, of about $30,000 in gross revenue. A dispassionate view of the situation would indicate that the new rates would be all right, say, for Long Branch and Asbury Park; but not so, for instance, for Deal Beach, Neptune, Little Silver, Fair Haven or West Long Branch.

IN the case of George Alverdes, respondent, *v.* St. Paul (Minn.) Gas Light Company, appellant, the Ramsey County Court reversed the opinion of the lower court, the gist of the matter being in this *resumé* of the opinion: "The acceptance by the defendant of an order from appellant to furnish such meters and connections as should be necessary to supply gas for the premises occupied by him as a tenant did not make the defendant liable for damages resulting from a shortage in the supply of gas caused by defects in a distributing pipe within the building over which defendant had no control."

THE Gas Machinery Company, of Cleveland, O., has been awarded a contract to erect a 5-foot double superheater water gas apparatus in the works of the Greenville (S. C.) Gas and Electric Light and Power Company. The Greenville folks now have two water gas sets, but one of these will be removed to provide space for the new machine.

MR. W. A. SCHOFIELD, the most noted breeder of chickens on the Pacific Coast, is considering the advisability of operating his incubrators by means of gas instead of oil. His wonderful stretch of coops, or "henneries," is located in Gardena, Cal., a pronouncedly beautiful spot some 40 miles from Los Angeles, and the place is being populated so rapidly that Mr. Schofield might ultimately find it not only feasible but profitable to construct a small water gas plant, not only to hatch out his chicks, but to broil them later on when the birds had reached that age which causes them to be regarded with great favor by the discerning chef.

DEAR JOURNAL: Down in the beautiful precincts of Shickshinny Valley, to say nothing about the eternal Shickshinny hills, the experiment of municipal ownership has been tried and found wanting. So for your perusal I forward you a copy of the Shickshinny *Mountain Echo*, which puts the affair in fair light. I don't suppose you will reprint this, for Shickshinny is a small place despite the mixture of consonants shown in its name.—G. A. W.

WELL, "G. A. W.," is wrong, for we shall reprint the bulk of the *Echo's* comments on the subject, since several of these may be held as the moral which adorns a tale often told in larger communities with less impossible names. Here is the re-echo:

"By a vote of 4 to 2 the municipal light plant was sold by the Borough Council at a special meeting. The Luzerne County Gas and Electric Company is the purchaser. The Company is a good one, thoroughly reliable, conducts business on business principles, and lights nearly all the up-river towns and is an expert at the business. The Borough gets a very good deal—$10,500 for the plant in cash, 24-hour service, street lights at much less than present cost, which will burn continuously from ½ hour after sunset to ½ hour before sunrise, the minimum rate reduced from $1 to 50 cents, the smallest users getting light at present rates and larger consumers at a discount. The continuous service will allow the introduction of electric fans and electricity for power of all kinds. The power lines will be here by the middle of August, and the purchasers will be ready to take over the plant by September 1st. The sale of the plant will be welcome news to the taxpayers. Since its inauguration in 1893 the town has had poor service too much of the time. The street lights have been out for months at a stretch, and yet the taxpayers paid for them. Under the new contract with the Gas and Electric Company, if an accident should happen there will be a reduction in the price for lost time. The Council have been in hot water with the plant most of the time, and it has taken about all their energy and labor to keep the plant going. When the plant is off the Council's hands the members will be able to give attention to some needs of the town. The Council are to be congratulated upon taking advantage of this excellent offer. Their action is commended by a large majority of the taxpayers and by practically all the users of light. The town has too long been held back by a 1-horse light plant and everybody is happy over the prospects of progress."

The Market for Gas Securities.

Consolidated is off for the week to all intent and purpose 4 points, the work of the "probers" on Congressional account into steel and other matters being offered as the ostensible cause. Again, some of the ultra-wise opined that the death of J. W. Gates might have had something to do with the slump. It might, of course; then, again, it mightn't! However, select your own cause or reason; meanwhile it is our satisfactory task to chronicle that everything connected with the gas situation warrants much higher prices for gas securities the U. S. over.

The out-of-town situation is not at all in accord with the city one, prices having been fairly well maintained. To be sure the out-of-towners had their slump some time back, and stayed slumped. The figures on standard gas shares are now so low that lower ones look almost impossible. August never was much of a bull month, in any event.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

115 BROADWAY, NEW YORK CITY.

AUGUST 14.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share:

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked*
Consolidated Gas Co.	$78,177,000	100	139¼	140
Central Union Gas Co.—				
1st 5's, due 1972, J. & J.	3,000,000	1,000	103	105
Equitable Gas Light Co.—				
Con. 5's, due 1932, M. & S.	1,000,000	1,000	115	118
Mutual Gas Co.	3,500,000	100	155	165
New Amsterdam Gas Co.—				
1st Con. 5's, due 1948, J. & J.	11,000,000	1,000	100	101½
New York & Richmond Gas Co. (Staten Island)	1,500,000	100	35	50
1st Mtg. Gold Bds. 5 p. ct.	1,000,000	—	98½	100½
New York and East River—				
1st 5's, due 1944, J. & J.	3,500,000	1,000	103	105
Con. 5's, due 1945, J. & J.	1,500,000	—	95	100
Northern Union—				
1st 5's, due 1927, J. & J.	1,250,000	1,000	94	100
Standard	5,000,000	100	50	70
Preferred	5,000,000	100	70	100
1st Mtg. 5's, due 1930, M. & N.	1,500,000	1,000	103	105
The Brooklyn Union	15,000,000	1,000	138	140
1st Con. 5's, due 1948, M. & N.	15,000,000	—	106¾	107
Yonkers	299,650	500	130	—
Out-of-Town Companies.				
Bay State	50,000,000	50	⅝	⅛
" Income Bonds	2,000,000	1,000	—	75
Binghampton Gas Works	450,000	100	—	—
" 1st Mtg. 5's	500,000	1,000	95	100
Boston United Gas Co.—				
1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	5	8
Bonds, 5's	5,250,000	1,000	50	60
Capital, Sacramento	500,000	50	—	35
Bonds (6's)	150,000	1,000	—	—
Chicago Gas Co. Guaranteed Gold Bonds	7,860,000	1,000	104	106¼
Cincinnati Gas and Electric Co.	29,500,000	100	92	93
Columbus (O.) Gas Co., 1st Mortgage Bonds	1,500,000	1,000	96	98
Columbus (O.) Gas Lt. & Heating Co.	1,682,750	100	90¼	91
Preferred	3,026,500	100	75½	80
Consumers, Toronto	2,000,000	50	200	204
Consolidated, Baltimore	13,460,084	100	106½	—
Mortgages, 5's	3,400,000	—	89	100
Chesapeake, 1st 6's	1,000,000	—	—	—
Equitable, 1st 6's	910,000	—	—	—
Consolidated, 1st 5's	1,490,000	—	—	112
Consolidated Gas Co. of N. J.	1,000,000	100	15	—
Con. Mtg. 5's	976,000	1,000	92	95
Bonds	75,000	—	—	100
Denver Gas and Electric	3,500,000	—	102	105
Detroit City Gas Co.	6,580,000	—	—	50
" Prior Lien 5's	5,619,000	1,000	97	100½
Detroit Gas Co., 5's	381,000	1,000	75	80
Equitable Gas & Fuel Co., Chicago, Bonds	2,000,000	1,000	—	101
Essex and Hudson Gas Co.	6,500,000	—	39	40
Fort Wayne	2,000,000	—	—	—
" Bonds	2,000,000	—	55	—
Grand Rapids Gas Light Co., 1st Mtg. 5's	1,350,000	1,000	100	101
Hartford	750,000	35	190	200
Hudson County Gas Co., of New Jersey	10,500,000	—	112	113½
" Bonds, 5's	10,500,000	—	108	108½
Indianapolis	2,000,000	—	78	83
" Bonds, 5's	2,650,000	—	104½	105
Jackson Gas Co.	250,000	50	82	—
" 1st Mtg. 5's	290,000	1,000	97	100
Kansas City Gas Light Co., of Missouri	5,000,000	100	—	86
Bonds, 1st 5's	3,822,000	1,000	102	104
Laclede Gas Co., St. Louis	10,000,000	100	104¼	104½
Preferred	2,500,000	100	94¾	102
Bonds	10,000,000	1,000	102½	103
Lafayette Gas Co., Ind.	1,000,000	100	—	60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	143	145
Madison Gas and Electric Co.				
" 1st Mtg. 6's	400,000	1,000	106	108¼
Massachusetts Gas Companies, of Boston	25,000,000	100	95	95½
Preferred	25,000,000	100	97½	97¾
Montreal Gas Co., Canada	2,000,000	100	218	218¾
Nashville Gas Light Co.	1,000,000	100	110	—
Newark, N. J., Con. Gas Co.	6,000,000	—	56	58
Bonds, 6's	6,000,000	—	137	138
New Haven Gas Co.	2,000,000	25	200	—
Peoples Gas Lt. & Coke Co., Chicago	25,000,000	100	104⅝	104¾
1st Mortgage	20,100,000	1,000	—	—
2d "	2,500,000	1,000	104	—
Rochester Gas & Electric Co.	2,150,000	50	88	—
Preferred	2,150,000	50	118	—
Consolidated 5's	2,000,000	—	104¾	105½
San Francisco Gas Co., Cal.	15,500,000	—	—	—
St. Joseph Gas Co.—				
1st Mtg. 5's	1,000,000	1,000	100	102
St. Paul Gas Light Co.	2,500,000	100	—	—
1st Mortgages, 6's	650,000	1,000	104	106
Extension, 6's	600,000	1,000	112¾	115
General Mortgage, 5's	3,447,000	1,000	97	98
Syracuse Gas Co., N. Y.	1,975,000	100	50	55
Bonds	2,047,000	1,000	101	103
Washington (D. C.) Gas Co.	1,800,000	300	445	450
1st Mortgage, 6's	600,000	—	—	—
Western Gas Co., Milwaukee	4,000,000	—	—	—
Wilmington (Del.) Gas Co.	600,000	50	361	—

MEETING TIMES OF THE VARIOUS GAS ASSOCIATIONS.

American Gas Institute.—Annual meeting, October 18, 19, 20, 21, 1911. St. Louis, Mo. Officers: President, Donald McDonald, Louisville, Ky. Secretary, A. B. Beadle, 29 West 39th st., N. Y. City.

Canadian Gas Association.—Annual meeting, ———. Officers: President, Arthur Hewitt, Toronto, Ont.; Secretary and Treasurer, John Keillor, Hamilton, Ont.

Empire State Gas and Electric Association.—Annual meeting, Nov., 1911. New York City. Officers: President, M. J. Brayton, Utica, N. Y.; Secretary, C. H. B. Chapin, 29 W. 39th street. New York City.

Guild of Gas Managers of New England.—Annual meeting, March, 1912. Young's Hotel, Boston; monthly meeting, second Saturday. Officers: President, Walter G. Africa, Manchester, N. H.; Secretary, H. K. Morrison, Brockton, Mass.

Illinois Gas Association.—Annual meeting, time, March, 1912, Chicago, Ills. Officers: President, C. B. Strohn, Elgin, Ills.; Secretary-Treasurer, F. E. Newberry, Dixon, Ills.

Illuminating Engineering Society.—Annual meeting, Sept. 25, 26, 27, 1911, Chicago, Ills. Meetings of Sections, monthly. Pres't, A. E. Kennelly, Boston, Mass.; Secretary, Preston S. Millar, 29 W. 39th street, N. Y. City. Sections: New York, Secretary, Albert J. Marshall, 36 West 39th street. New England, Secretary, W. S. Farrow, 1290 Massachusetts avenue, Cambridge, Mass. Philadelphia, Secretary, S. B. Eichengreen, Broad and Arch streets. Chicago, Secretary, F. H. Bernhard, Marquette Building.

Indiana Gas Association.—Annual meeting, Jan. 17 and 18, 1912, Indianapolis. Officers: President, S. E. Mulholland, Fort Wayne; Vice-President, Howard L. Olds, Indianapolis; Secretary-Treasurer, Philmer Eves, Indianapolis.

Iowa District Gas Association.—Annual meeting, time, May, ——, 1912; Clinton, Ia. Officers: President, G. W. Clabaugh, Omaha, Neb.; Secretary and Treasurer, G. I. Vincent, Des Moines, Ia.

Kansas Gas, Water and Electric Light Association.—Annual meeting, time, ——— Wichita, Kas. Officers: President, W. A. Scothorn, Hutchinson, Kas.; Secretary and Treasurer, J. D. Nicholson, Newton, Kas.

Michigan Gas Association.—Annual meeting, time, Sept. 20, 21, 22, 1911; Detroit, Mich. Officers: President, A. P. Ewing, Detroit, Mich.; Secretary-Treasurer, Glenn R. Chamberlain, Grand Rapids, Mich.

Missouri Electric Light, Gas, Water Works and Street Railway Association.—Annual meeting, April, 1912; St. Louis, Mo. Officers: President, F. E. Murray, Louisiana, Mo.; Secretary and Treasurer, N. J. Cunningham, Springfield, Mo.

National Commercial Gas Association.—Annual meeting, October 23-28, 1911. Denver, Officers: President, C. N. Stannard, Denver; Secretary, Louis Stotz, 29 West 39th street, New York City.

Natural Gas Association.—Annual meeting, May, 1912, Kansas City, Mo.; Officers: President, A. B. Macbeth, Independence, Kas. Secretary, T. C. Jones, Delaware, O.

New England Gas Association.—Annual meeting, third Wednesday in February, 1912; Boston. Officers: President, J. A. Coffin, Gloucester, Mass.; Secretary-Treasurer, N. W. Gifford, East Boston, Mass.

New Jersey State Gas Association.—President, William H. Pettes, Newark, N. J.; Secretary-Treasurer, Arthur H. Osborn, Belmar, N. J.

Ohio Gas Association.—Annual meeting, February 6 and 7, 1912, Columbus, O.; President, John M. Garard, Columbus, O.; Secretary-Treasurer, T. C. Jones, Delaware, O.

Pacific Coast Gas Association.—Annual meeting, Sept. 19, 20, 21 and 22, 1911, Oakland, Cal. Officers: President, F. A. Leach, Jr., Oakland, Cal.; Vice President, W. Baurhyte, Los Angeles, Cal.; Secretary-Treasurer, John A. Britton, 445 Sutter street, San Francisco, Cal.

Pennsylvania Gas Association.—Annual meeting, April, 1912, Williamsport, Pa. Officers President, C. W. Butterworth, Milton, Pa; Secretary-Treasurer, William H. Merritt, Lebanon, Pa.

Society of Gas Lighting.—Annual meeting, December, 1911; monthly meeting, second Thursday. Place, New York City. Officers: President, Fred. S. Benson; Secretary, George G. Ramsdell, 254 West 89th street, New York city.

Southern Gas Association.—Annual meeting, April, 1912, Jacksonville, Fla. Officers: President, H. B. Hoyt, Jacksonville, Fla.; Secretary-Treasurer, E. D. Brewer, Atlanta, Ga.

Southwestern Electrical and Gas Association.—Annual meeting, April 27, 28, 29, 1912; Houston, Tex. Officers: President, J. E. Carroll, Beaumont, Tex.; Secretary, D. G. Fisher, Dallas, Tex.

Wisconsin Gas Association.—Annual meeting, May 15 and 16, 1912, Milwaukee, Wis Officers: President, H. M. Buck, Waukesha, Wis.; Secretary-Treasurer, Henry Harmon, Milwaukee, Wis.